

STEPHANI

RESTRICTED

JAPANESE AIRCRAFT MANUAL

NOT TO BE TAKEN INTO THE AIR

O.N.I. 249



ONI 249

JAPANESE AIRCRAFT MANUAL

Change #5



Page 3

Page 4

Pages 5 - 6

✓ : Destroy promulgating letter dated December 5, 1942 and insert new promulgating letter dated June 25, 1943, page 3.

✓ : Destroy list of Japanese Aircraft and insert amended list, Japanese Aircraft, pages 4 and 4-1, and blank page 4-2.

✓ : Destroy Introduction, page 5, and Instructions, page 6, and insert revised Introduction, pages 5 and 6.

SECTION - FIGHTERSSub-section CLAUDE, page 13Performance Data Sheet, page 15

After "Engine"

✓ : Delete "One Kinsei 9-cylinder, air cooled, radial, developing 730 h.p. at 9,000 ft." and insert "One Kotobuki Model 41, 9 cylinder air cooled radial, 645 horsepower with 2500 r.p.m. at take-off."

After "Remarks" and after
"(May carry 2 x 30 kg bombs)"

✓ : Insert "Probably used for training purposes."

Sub-section NATE, pages 19, 20.

✓ : Destroy performance data sheet, page 19, and photographs, page 20, NATE, and insert new performance data sheet, page 19, and new photographs, page 20, NATE.

Sub-section ZEKE, page 32

Under "Tactical Data"

✓ : Add "Aerial bombs, which appear to be the very accurately timed high explosive type combined with some incendiary, have been used by ZEKES against B-17's."

Pages 33 and 34

✓ : Destroy photographs, ZEKE, pages 33 and 34, and insert new photographs, ZEKE, pages 33 and 34.

Sub-section RUFE, page 34-1, et seq. : Destroy following pages:

✓ 1. Line drawings, RUFE, page 34-1.

✓ 2. Performance data sheet, RUFE, page 34-2.

✓ 3. Performance data sheet, concluded, RUFE, page 34-2-1.

✓ 4. Photographs, ZEKE and RUFE, page 34-2-2.

Insert:

✓ 1. New line drawings, RUFE, page 34-1.

✓ 2. Performance data sheet, RUFE, page 34-2.

✓ 3. Performance data sheet, concluded, RUFE, page 34-2-1.

✓ 4. New photographs, RUFE, page 34-2-2.

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Sub-section HAP, page 34-5

✓ : Destroy performance data sheet, page 34-5, and photographs, page 34-6, HAP, and insert performance data sheet, page 34-5, and new photographs, page 34-6, HAP.

Sub-section OSCAR, page 34-7, et. seq.: Destroy following pages:

- ✓ 1. Blank page 34-7.
- ✓ 2. Renderings, OSCAR, page 34-8.
- ✓ 3. Performance data sheet, OSCAR, page 35.
- ✓ 4. Photographs, OSCAR, page 36.

Insert:

- ✓ 1. New arcs of fire, OSCAR, page 34-7.
- ✓ 2. Renderings, OSCAR, page 34-8.
- ✓ 3. New performance data sheet, OSCAR, page 35.
- ✓ 4. New photographs, OSCAR, page 36.

SECTION - OBSERVATION

Sub-section ALF, page 44-7

Performance data sheet

After "Remarks"

: Delete entire section and then insert:
"This aircraft equipped with the engine listed above is known as Type 94 Mark 1 Navy Single Engine Observation Seaplane. It may be equipped in some cases with a Zuisai Model 2, 14 cylinder, air cooled, radial engine, in which case it is known as Type 94 Mark 2 Navy Single Engine Observation Seaplane."

Sub-section SLIM, page 48-1

Performance Data Sheet

After "Crew"

: Insert "Two".

After "Weights"

: Insert "2,660 lbs." under "Empty".

After "Maximum Speed"

: Delete "170 m.p.h. at 11,000 ft." and insert "135 m.p.h."

After "Rate of Climb"

: Delete "9,840 ft. in 9 min. 41 sec." and insert "10,000 ft. in 11 minutes."

Under the heading "Range" and after "Normal"

: Insert "95 m.p.h. under "Cruising Speed".

After "Radio"

: Insert "Radio equipment carried."

After "Remarks"

: Delete "It is estimated that this plane is launched one hour after SS has surfaced." and insert, "17 minutes required launching time. 7 minutes required to resecure and submerge after launching aircraft."

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Sub-section BOB, page 48-5

Performance Data Sheet

After "Remarks"

- : Delete the sentence, "It is believed that this plane may be known as type 94 Reconnaissance Seaplane Model 12 adopted in November, 1938."

Sub-section PETE, page 51

- : Destroy performance data sheet, page 51, and photographs, page 52, PETE, and insert new performance data sheet, page 51, and photographs, page 52, PETE.

Sub-section GLEN, page 52-1

Performance data sheet

After "Crew"

- : Insert "Two".

After "Weights"

- : Insert "2,920 lbs." under "Empty".

After "Maximum Speed"

- : Delete "190 m.p.h." and then insert "220 m.p.h."

Under the heading "Range" and
After "Normal"

- : Delete "475" and then insert "700" under "Range in Statute Miles" and "115 m.p.h." under "Cruising Speed."

After "Radio"

- : Insert "Radio equipment is carried."

After "Armament"

- : Insert 1 x 7.7 mm. machine gun".

After "Remarks"

- : Delete "It is estimated that this plane is launched one hour after submarine has surfaced" and insert "15 minutes required launching time. 7 minutes required to secure and submerge after launching aircraft. Recovery and stowage require 17 minutes."

Sub-section JAKE, page 52-3

- : Before performance data sheet, page 52-3, and after blank page 52-2, insert arcs of fire, page 52-2-1, and line drawings, page 52-2-2, JAKE.

- : Destroy performance data sheet, page 52-3, JAKE, and blank page 52-4, and insert new performance data sheet, page 52-3, and new photographs, page 52-4, JAKE.

Sub-section DINAH, page 52-4-3

- : Destroy performance data sheet, page 52-4-3, DINAH, and blank page 52-4-4, and insert new performance data sheet, page 52-4-3, DINAH, and blank page 52-4-4.

SECTION - TORPEDO - DIVE BOMBERS

Sub-section KATE, page 53

- : From title at top of page 53, only, delete "Mark 3"

- : Destroy line drawings KATE 1, page 55, and performance data sheet, KATE, page 56, and insert line drawings, KATE 1, page 55, and new performance data sheet, KATE 3, page 56.

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Sub-section VAL, page 57

✓ : Destroy arcs of fire, page 57, and line drawings VAL, page 58, and insert new arcs of fire, page 57, and line drawings VAL 1, page 58.

✓ : After line drawings, VAL 1, page 58, insert new line drawings, VAL 2, page 58-1, and new performance data sheet VAL 1, page 58-2.

✓ : Destroy performance data sheet, VAL, page 59, and photographs, VAL, page 60, and insert new photographs VAL 1 and VAL 2, page 59, and new photographs VAL 2, page 60.

Sub-section IRENE, page 60-4

✓ : Following photographs of IRENE, page 60-4, insert blank pages 60-4-1 and 60-4-2, performance data sheet, JUNE, page 60-4-3, and blank page 60-4-4.

LIGHT BOMBERS

Sub-section BABS, page 60-8

✓ After page 60-8, insert blank page 60-8-1, line drawings, page 60-8-2, performance data sheet, page 60-8-3, and blank page 60-8-4, ANN.

SECTION - MEDIUM BOMBERS

Sub-section NELL, page 63

✓ : Destroy performance data sheet, page 63, and photographs, page 64, NELL, and insert new performance data sheet, page 63, and new photographs, page 64, NELL.

Sub-section SALLY, page 65

✓ : In title at top of pages 65 and 66, after "Type 97", insert "Mark 1".

✓ : Destroy performance data sheet, page 67, and photographs, page 68, SALLY, and insert new performance data sheet, SALLY 1, page 67, and new photographs, SALLY 1 and SALLY 2, page 68.

Sub-section LILY, page 68-5 et seq. : Destroy following pages:

✓ 1. Blank page 68-5.

✓ 2. Renderings, LILY, page 68-6.

✓ 3. Performance data sheet, LILY, page 68-7.

✓ 4. Photographs, LILY, page 68-8.

Insert:

✓ 1. New arcs of fire, LILY, page 68-5.

✓ 2. Renderings, LILY, page 68-6.

✓ 3. Performance data sheet, LILY, page 68-7.

✓ 4. New photographs, LILY, page 68-8.

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Sub-section BETTY, page 69 et seq. : Destroy following pages:

- ✓ 1. Arcs of fire, BETTY, page 69.
2. Renderings, BETTY, page 70.
3. Performance data sheet, BETTY, page 71.
- ✓ 4. Photographs, BETTY, page 72.
5. Photographs, BETTY, page 73.
6. Blank page 74.

Insert:

- ✓ 1. New arcs of fire, BETTY, page 69.
2. Renderings, BETTY, page 70.
3. New performance data sheet, BETTY, page 71.
- ✓ 4. Photographs, BETTY, page 72.
5. New Photographs, BETTY, page 73.
6. Blank page 74.

SECTION - FLYING BOATS
(Patrol Bombers)

Sub-section MAVIS, page 75, et seq. : Destroy following pages:

- ✓ 1. Arcs of fire, MAVIS, page 75.
2. Line drawings, MAVIS, page 76.
- ✓ 3. Performance data sheet, MAVIS, page 77.
- ✓ 4. Photographs, MAVIS, page 78.

Insert:

- ✓ 1. New arcs of fire, MAVIS, page 75.
- ✓ 2. Line drawings, MAVIS, page 76.
- ✓ 3. New performance data sheet, MAVIS, page 77.
- ✓ 4. Photographs, MAVIS, page 78.

SECTION - TRANSPORTS

Sub-section TRIXIE, page 80-12

- ✓ : Following photographs, TRIXIE, page 80-12, insert blank page 81, renderings, page 82, performance data sheet, page 83, and photograph, page 84, TESS.

Sub-section TESS, page 84

- ✓ : Following photographs, TESS, page 84, insert blank page 85, renderings, page 86, performance data sheet, page 87, and photographs, page 88, THELMA.

April 10, 1943

ONI 249JAPANESE AIRCRAFT MANUALChange #4

Positive evidence has been obtained to show that the Japanese do not refer to their aircraft using the manufacturers' names, and that one type of aircraft may be manufactured by one or more companies. Accordingly, all Japanese manufacturers' names such as Mitsubishi, Nakajima, Kawasaki, Kawanishi, etc., should be deleted from the standard nomenclature titles of aircraft on page 4 as well as from the standard nomenclature titles of the aircraft throughout ONI 249. Do not make any changes in this connection with respect to German aircraft types.

Heretofore, "MOD" has been used to indicate a modification, change or improved model of an aircraft type. Since the use of "MOD" has led to some confusion, it is being deleted altogether where definite information is lacking, or altered to "MARK" and the number of the "MARK", if known, inserted in the following changes:

Page 4

- : Delete MOD in standard nomenclature of PERRY.
- Delete MOD in standard nomenclature of ABDUL.
- Change MOD to MARK 1 in standard nomenclature of ZEKE.
- Change MOD to MARK 1 in standard nomenclature of RUFFE.
- Change MOD 3 to MARK 3 in standard nomenclature of KATE.
- Change MOD 4 to MARK 4 in standard nomenclature of NELL.
- Delete MOD in standard nomenclature of SALLY.
- Change MOD 2 to MARK 2 in standard nomenclature of HAP.

Pages 9, 10, 11

- : Delete MOD from standard nomenclature title at top of each page - PERRY.

Pages 21, 22, 23

- : Delete MOD from standard nomenclature title at top of each page - ABDUL.

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Pages 63, 64

: Change MOD 4 to MARK 4 in standard nomenclature title at top of each page - NELL.

Pages 67, 68

: Delete MOD in standard nomenclature title at top of each page - SALLY.

SECTION - FIGHTERS

Sub-section PERRY Page 9

Performance Data Sheet Page 11

After "Remarks" and after

"Bombs"

: Insert "Believed to be obsolescent."

Sub-section CLAUDE Page 13

: Destroy arcs of fire and line drawings, CLAUDE, pages 13 and 14, and insert arcs of fire and new line drawings - CLAUDE.

Sub-section NATE Page 17

: Destroy arcs of fire and line drawings, NATE, pages 17 and 18, and insert arcs of fire and new renderings in place of line drawings, NATE.

Sub-section DICK Page 25

: Destroy arcs of fire and line drawings, DICK, pages 25 and 26, and insert arcs of fire and new line drawings, DICK.

Sub-section ZEKE, RUFE
Page 29 et seq.

: Destroy following pages:

- ✓ 1. Arcs of fire, ZEKE - page 29.
- ✓ 2. Line drawings, ZEKE - page 30.
- ✓ 3. Line drawings, RUFE - page 31.
- ✓ 4. Performance data sheet, ZEKE - page 32.
- ✓ 5. Photographs, ZEKE - page 33.
- ✓ 6. Photographs, ZEKE, RUFE - page 34.
- ✓ 7. Photograph, ZEKE - page 34-1.
- ✓ 8. Blank page - page 34-2.

Insert:

- ✓ 1. Arcs of fire, ZEKE - page 29.
- ✓ 2. New renderings, ZEKE - page 30.
- ✓ 3. New performance data sheet, ZEKE - page 31.
- ✓ 4. New performance data sheet, concluded, - ZEKE - page 32.

RESTRICTED

Sub-section ZEKE, RUFE
(Continued)

- ✓ 5. Photographs, ZEKE - page 33.
- ✓ 6. Photograph, ZEKE - page 34.
- 7. New line drawings, RUFE - page 34-1.
- ✓ 8. New performance data sheet, RUFE - page 34-2.
- ✓ 9. New performance data sheet, concluded, RUFE - page 34-2-1.
- ✓ 10. Photographs, ZEKE & RUFE - page 34-2-2.

Sub-section HAP Page 34-3

- ✓ : Destroy blank page and line drawings, HAP, pages 34-3 and 34-4, and insert new arcs of fire, page 34-3, and new line drawings, HAP, page 34-4.
- ✓ Destroy performance data sheet and photographs, HAP, pages 34-5 and 34-6, and insert new performance data sheet, page 34-5 and photographs, HAP, page 34-6.

Sub-section OSCAR Page 34-7

- ✓ : Destroy blank page and line drawings, OSCAR, pages 34-7 and 34-8, and insert blank page, 34-7, and new renderings, OSCAR, page 34-8.
- ✓ Destroy performance data sheet and photographs, OSCAR, pages 35 and 36, and insert new performance data sheet, page 35, and new photographs, OSCAR, page 36.

Sub-section FRED Page 37

- ✓ : Destroy arcs of fire and line drawings, FRED, pages 37 and 38, and insert arcs of fire, page 37, and new line drawings, FRED, page 38.

Sub-section MIKE Page 41

- ✓ : Destroy arcs of fire and line drawings, MIKE, pages 41 and 42, and insert arcs of fire, page 41, and new line drawings, MIKE, page 42.

SECTION - OBSERVATION

Sub-section DAVE Page 45

- ✓ : Destroy arcs of fire and line drawings, DAVE, pages 45 and 46, and insert arcs of fire, page 45, and new line drawings, DAVE, page 46.

Sub-section PETE Page 49

- ✓ : Destroy arcs of fire and line drawings, PETE, pages 49 and 50, and insert arcs of fire, page 49, and new line drawings, PETE, page 50.

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Sub-section JAKE Page 52-3 : After pages 52-3 and 52-4, insert blank page 52-4-1, new provisional line drawings, page 52-4-2, performance data sheet, page 52-4-3, and blank page 52-4-4, DINAH.

SECTION - TORPEDO AND DIVE BOMBERS

Sub-section KATE Page 53 : Destroy arcs of fire and line drawings, KATE, pages 53 and 54, and insert arcs of fire, page 53 and new renderings, KATE 3, page 54. Destroy performance data sheet and photographs, KATE, pages 55 and 56, and insert new line drawings, KATE 1, page 55, and new performance data sheet, KATE, page 56. Insert new photographs, KATE 1 and 3, page 56-1, and blank page 56-2.

Sub-section VAL Page 57 : Destroy arcs of fire and line drawings VAL, pages 57 and 58, and insert arcs of fire, page 57, and new line drawings, VAL, page 58. Destroy performance data sheet and photographs, VAL, pages 59 and 60, and insert new performance data sheet, page 59, and new photographs, VAL, page 60.

SECTION - LIGHT BOMBERS

Sub-section BABS page 60-5 : Destroy arcs of fire and line drawings BABS, pages 60-5 and 60-6, and insert arcs of fire, page 60-5, and new renderings, BABS, page 60-6.

SECTION - MEDIUM BOMBERS

Sub-section NELL Page 61 : Destroy arcs of fire and line drawings, NELL, pages 61 and 62, and insert arcs of fire, page 61, and new line drawings, NELL, page 62.

Sub-section SALLY Page 65 : Destroy arcs of fire and line drawings, SALLY, pages 65 and 66, and insert arcs of fire, page 65, and new renderings, SALLY, page 66.

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Sub-section LILY Page 68-5 : Destroy blank page and line drawings, LILY, pages 68-5 and 68-6, and insert blank page, 68-5, and new renderings, LILY, page 68-6.
✓ Destroy performance data sheet and blank page, LILY, pages 68-7 and 68-8, and insert new performance data sheet, page 68-7, and new photograph, LILY, page 68-8.

Sub-section BETTY Page 69 : Destroy arcs of fire and line drawings, BETTY, pages 69 and 70, and insert arcs of fire, page 69, and new renderings, BETTY, page 70.

SECTION - PATROL BOMBERS
(Flying Boats)

Sub-section MAVIS Page 75 : Destroy arcs of fire and line drawings, MAVIS, pages 75 and 76, and insert arcs of fire, page 75, and new line drawings, MAVIS, page 76.

Sub-section CHERRY Page 80-1 : Destroy blank page and line drawings, CHERRY, pages 80-1 and 80-2, and insert blank page, 80-1, and new line drawings, CHERRY, page 80-2.

SECTION - TRANSPORTS

Sub-section TOPSY Page 80-5 : Destroy blank page and line drawings, TOPSY, pages 80-5 and 80-6, and insert blank page, 80-5, and new line drawings, TOPSY, page 80-6.

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O.N.I. 249

Change #3

SECTION:

Conversion Factors		Page 7	Number the following blank page 8.
Sub-section	PERRY	Page 11	Number the following blank page 12.
"	"	ABDUL	Page 23
"	"	BETTY	Page 73
"	"	JOYCE	Pages 73-1,73-2,73-3
"	"	DORIS	Pages 73-4,73-5,73-6
"	"	JANICE	Pages 73-7,73-8,73-9,73-10
"	"	EMILY	Page 79
"	"	EMILY	Page 79-1 (Blank)
"	"	CHERRY	Pages 79-2,79-3,79-4
"	"	TOPSY	Pages 79-5 (Blank) 79-6,79-7,79-8
"	"	TRIXIE	Pages 79-9,79-10 79-11,79-12

Number the following blank page 24.
Number the following blank page 74.
Renumber 74-1,74-2,74-3.
Renumber 74-4,74-5,74-6.
Renumber 74-7,74-8,74-9,74-10.
Number the following blank page 80.
Renumber 80-1.
Renumber 80-2,80-3,80-4.
Renumber 80-5,80-6,
80-7,80-8.
Renumber 80-9,80-10,
80-11,80-12.

JAPANESE AIRCRAFT MANUAL

Change #2

SECTION-FIGHTERSSub-section ZEKE Page 32

: After "maximum speed" on performance data sheet, delete "at 11,500 ft. and insert "maximum emergency at 16,000 ft."

Sub-section HAP Pages 34-4Performance Data Sheet

After "Type" Pages 34-4 - 34-5

: Insert "O MOD 2"

After "Originally manufactured by"

: Insert "Mitsubishi"

After "also manufactured by"

: Insert "Nakajima"

After "Engines" and after "air-cooled"

: Insert "14 cylinder, Nakajima E1 (Sakae) Model 21."

After "Armor"

: Insert Nil

After "Armament"

: Insert "2 x 7.7 mm mgs. synchronized and 2 x 20 mm cannons, fixed wings."

After "Ammunition"

: Insert "600 rds for 7.7 mm mg. and 60 rds for 20 mm cannon".

After "Remarks"

: Delete entire section.

Sub-section "FRED" Pages 37-40 inc.

: Insert the word "Type" before "FW-190" on all pages so as to read "Type Focke Wulf 190".

Sub-section "MIKE" Pages 41-43 inc.

: Insert the word "Type" before "ME 109" on all pages so as to read "Type Messerschmitt 109".

SECTION - OBSERVATIONSub-section PHPE Page 51

: After "service ceiling" insert "23,000 ft."
 : Under "Range" and after "Normal" under "cruising speed" insert "145".
 : Under "Range" change "Maximum Fuel" to read "Maximum Bombs".
 : After "Maximum Bombs" and under "Cruising speed" insert "130".
 : After "Tactical Data" insert "Light and slow in dive."

SECTION - TORPEDO AND DIVE BOMBERSPerformance Data Sheet for "KITE"
Page 55

After ammunition

: Insert "600 rds for 7.7 mm fixed guns. 300 rds for flexible 7.7 mm mg."

SECTION - MEDIUM BOMBERSPerformance Data SheetSub-section BETTY Page 71

: After "Engine" after the word "Model" delete "3" and insert "11 or 15".
 : After "Dimensions" after "Wing Span" delete "76" and insert "79'8" ".
 : Insert "at 13,500"

After "Maximum Speed" and after "hour"
 RANGE

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JAPANESE AIRCRAFT MANUAL
Change No. 2 (cont'd)

After "Max. Cruise" and under "cruising speed"	: Alter "207 to read "220"
After "Max. Cruise" and under "Fuel Imp. Gal."	: Alter "880 to read "627"
After "Max. Cruise" and under "Fuel U.S. Gal."	: Alter "1060 to read "756"
After "Normal" and under Range in Statute Miles	: Alter "2000" to read "1800"
After "Normal" and under Cruising Speed	: Alter "170" to read "180"
After "Normal" and under "Fuel Imp. Gal."	: Alter "880" to read "627"
After "Normal" and under "Fuel U.S. Gal."	: Alter "1060" to read "756"
After "Max. Fuel" and under Range in Statute Miles	: Alter "2,760 to read "3,000"
After "Max. Fuel" and under "Cruising Speed"	: Alter "170" to read "180"
After "Max. Fuel" and under "Fuel Imp. Gal."	: Insert "1123"
After "Max. Fuel" and under "Fuel U.S. Gal."	: Insert "1353"
After "Radio"	: Delete words "may be" and "Fairchild"
After "Vulnerability"	: Delete entire section and paste in the following amendment: "Eight fuel tanks in wings and fuselage, 4 between engine nacelles and 4 aboard of engine nacelles. They are of the self-sealing variety per medium of rubber pads held in place by grill pressure plates, and have not proven effective."

SECTION - PATROL BOMBERS

Performance Data Sheet for "MAVIS"

Page 77

After "Ammunition"

: Insert "300 rds per 7.7mm mg.,
60 rds. per 20 mm cannon".

SECTION - TRANSPORTS

Sub-section TOPSY

Pages 79-7

: On performance data sheet for TOPSY after weights under empty insert 11,900 lbs and under normal insert "18,300 lbs."
: After "Maximum speed" insert "266 MPH"
: After "Service ceiling" insert "23,000"
: Under "Range" on "Normal" line under "Range in Statute Miles" insert "1240".
: Under "cruising speed" insert "193" under "bombs" insert "Nil".

See PAGE 4

Find "Type Blank army and navy single engine fighter "HAP"

: After Type delete "Blank" and insert "O MOD 2"

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JAPANESE AIRCRAFT MANUAL

NOT TO BE TAKEN INTO THE AIR

O.N.I. 249

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1942

RESTRICTED
In Reply Refer to
Initials and No.
Op-16-P-1(2)

NAVY DEPARTMENT
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON

O. N. I. 249

June 25, 1943.

JAPANESE AIRCRAFT MANUAL

(Not to be taken into the air)

1. O. N. I. 249—Japanese Aircraft Manual—is an entirely new publication and is not to be confused with “Japanese Aircraft, Performances, Fields of Fire and Methods of Attack” published and distributed to the fighting services in 1942.

2. In classifying the earlier publication as “Restricted”, the Vice Chief of Naval Operations stated, in part: “Subject to the limitations imposed by this new classification and, the further notation ‘Not to be taken into the air’, it is the intent that the commanding officer feel free to exercise such latitude and discretion in its circulation as to insure a familiarity on the part of the fighting forces with the characteristics of Japanese aircraft.” The imposition “Not to be taken into the air” applies likewise to O. N. I. 249.

3. When first issued on December 5, 1942, O. N. I. 249 was in part a reprint of Intelligence Information Memorandum No. 12, 3d Edition, Japanese Air Services and Japanese Aircraft, a publication of the Directorate of Intelligence, Headquarters Allied Air Forces, Southwest Pacific Area. Subsequent amendments, deletions and additions contained in the changes to O. N. I. 249 have been based on data received from all Pacific, Far Eastern and Indian commands. Technical information furnished by the Bureau of Aeronautics has been included in these changes.

4. Too great a reliance should not be placed upon any given specifications and the publication should be used with prudence and the realization that much of the information may be subject to correction. Five changes, including the current one altering this letter of promulgation, have been issued to date and future changes will be made periodically as additional relevant data becomes available.

5. The Vice Chief of Naval Operations has directed that the assigned identifying or code names, listed on pages 4 and 4-1, should be used for Japanese aircraft to avoid confusion and for uniformity. New identifying or code names may be assigned by major commands whenever information indicates that aircraft of a type not included in O. N. I. 249 is believed to be in existence. Such newly assigned names should be sent by dispatch to OPNAV with a complete description of the aircraft. Attention is invited to the fact that all U. S. forces are now using this system of code names for Japanese aircraft.

H. C. TRAIN,
Admiral, U. S. Navy,
Director of Naval Intelligence.

JAPANESE AIRCRAFT

STANDARD NOMENCLATURE	CODE NAME	PAGES
Fighters (including Seaplane Fighters)		
Type 95 Army and Navy Single Engine Fighter	Perry	9, 10, 11
Type 96 Navy Single Engine Fighter	Claude	13, 14, 15, 16
Type 97 Navy Single Engine Seaplane Fighter	Adam	16-1, 16-2, 16-3
Type 97 Army and Navy Single Engine Fighter	Nate	17, 18, 19, 20
Type 97 Navy Single Engine Fighter	Abdul	21, 22, 23
Type 98 Army and Navy Single Engine Fighter	Dick	25, 26, 27, 28
Type 0 Army Twin Engine Fighter	Harry	28-1
Type 0 Mark 1 Army and Navy Single Engine Fighter	Zeke	29, 30, 31, 32, 33, 34
Type 0 Mark 1 Navy Single Engine Seaplane Fighter	Rufe	34-1, 34-2, 34-2-1, 34-2-2
Type 0 Mark 2 Army and Navy Single Engine Fighter	Hap	34-3, 34-4, 34-5, 34-6
Type 1 Army and Navy Single Engine Fighter	Oscar	34-7, 34-8, 35, 36
Type 1 Single Engine Fighter	Ray	36-1
Type Focke-Wulf 190 Single Engine Fighter	Fred	37, 38, 39, 40
Type Messerschmitt 109F Single Engine Fighter	Mike	41, 42, 43, 44
Type Messerschmitt 110 Twin Engine Fighter	Doc	44-1, 44-2, 44-3, 44-4
Observation		
Type 94 Navy Single Engine Observation Seaplane	Alf	44-5, 44-6, 44-7, 44-8
Type 95 Navy Single Engine Observation Seaplane	Dave	45, 46, 47, 48
Type 96 Navy Single Engine Observation Seaplane	Slim	48-1
Type 97 Navy Single Engine Observation Seaplane	Bob	48-4, 48-5
Type 0 Navy Single Engine Observation Seaplane	Pete	49, 50, 51, 52
Type 0 Navy Single Engine Observation Seaplane	Glen	52-1
Type 0 Navy Single Engine Observation Seaplane	Jake	52-2-1, 52-2-2, 52-3, 52-4
Type 100 Army and Navy Twin Engine Observation Plane	Dinah	52-4-2, 52-4-3
Torpedo—Dive Bombers		
Type 96 Navy Single Engine Dive Bomber	Susie	52-6, 52-7, 52-8
Type 97 Navy Single Engine Torpedo Bomber	Kate	53
Type 97 Mark 1 Navy Single Engine Torpedo Bomber	Kate 1	55, 56-1
Type 97 Mark 3 Navy Single Engine Torpedo Bomber	Kate 3	54, 56, 56-1
Type 99 Mark 1 Navy Single Engine Dive Bomber	Val 1	57, 58, 58-2, 59
Type 99 Mark 2 Navy Single Engine Dive Bomber	Val 2	58-1, 59, 60
Type Junkers 87B Army Single Engine Dive Bomber	Irene	60-1, 60-2, 60-3, 60-4
Type 99 Navy Single Engine Dive Bomber Seaplane	June	60-4-3
Light Bombers		
Type 97 Army Single Engine Light Bomber	Babs	60-5, 60-6, 60-7, 60-8
Type 97 Single Engine Light Bomber	Ann	60-8-2, 60-8-3
Type 98 Army Single Engine Light Bomber	Sonia	60-9, 60-10, 60-11, 60-12
Type 98 Single Engine Light Bomber	Millie	60-13, 60-14, 60-15, 60-16
Type 98 Army Single Engine Light Bomber	Ida	60-17, 60-18, 60-19, 60-20
Type 98 Single Engine Light Bomber	Mary	60-21, 60-22, 60-23, 60-24
Medium Bombers		
Type 96 Army Twin Engine Medium Bomber	Eve	60-25, 60-26, 60-27
Type 96 Mark 4 Army and Navy Twin Engine Medium Bomber	Nell	61, 62, 63, 64
Type 97 Army Twin Engine Medium Bomber	Julia	64-2, 64-3
Type 97 Mark 1 Army Twin Engine Medium Bomber	Sally 1	65, 66, 67, 68
Type 97 Mark 2 Army Twin Engine Medium Bomber	Sally 2	68

STANDARD NOMENCLATURE	CODE NAME	PAGES
<i>Medium Bombers—Continued</i>		
Type 98 Army Twin Engine Medium Bomber	Louise	68-1, 68-2, 68-3, 68-4
Type 99 Army Twin Engine Medium Bomber	Lily	68-5, 68-6, 68-7, 68-8
Type 0 Army and Navy Medium Bomber	Gwen	68-9
Type 1 Army and Navy Twin Engine Medium Bomber	Betty	69, 70, 71, 72, 73
Type 1 Army Twin Engine Medium Bomber	Joyce	74-1
Type Army and Navy Medium Bomber	Doris	74-4, 74-5
Type Junkers 88 Army Twin Engine Medium Bomber	Janice	74-7, 74-8, 74-9, 74-10
<i>Flying Boats (Patrol Bombers)</i>		
Type 97 Navy Four Engine Flying Boat	Mavis	75, 76, 77, 78
Type 98 Navy Single Engine Flying Boat	Laura	78-1
Type 99 Navy Four Engine Flying Boat	Emily	79
Type 99 Navy Twin Engine Flying Boat	Cherry	80-2, 80-3
<i>Transports</i>		
Mc 20 Transport	Topsy	80-6, 80-7, 80-8
Junkers 52 Three Engine Transport	Trixie	80-9, 80-10, 80-11, 80-12
D-2 Transport	Tess	82, 83, 84
Transport	Thelma	86, 87, 88

INTRODUCTION

1. The Japanese Aircraft Manual contains information on fields of fire and suggested methods of attack based upon an analysis of the blind spots in each Japanese aircraft in relation to the sectors on the standard clock

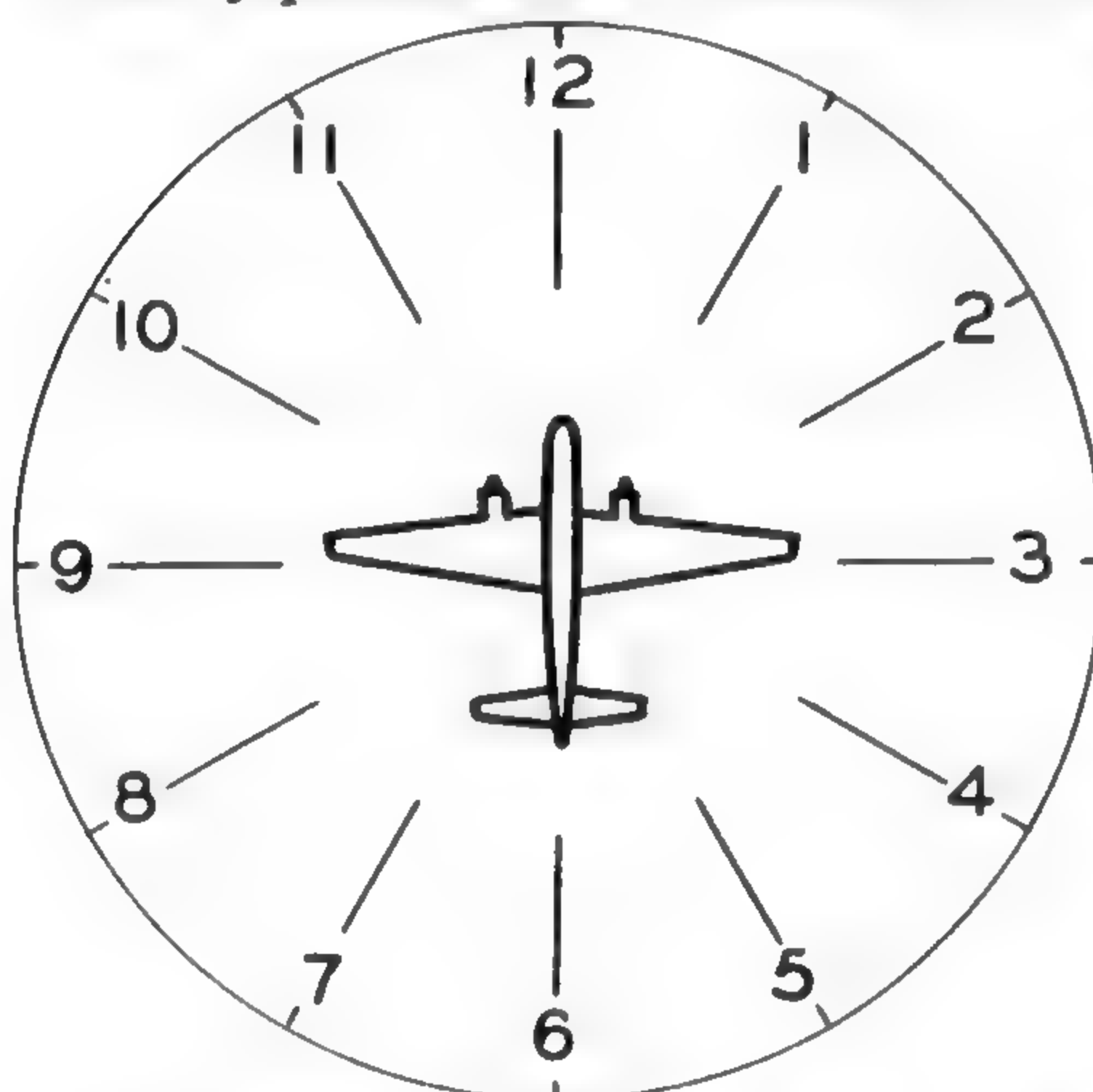


diagram shown. The most favorable direction of attack has been determined by the elimination of those sectors in which the enemy aircraft can bring effective fire to bear. For each aircraft type, a performance data sheet, many of which have been prepared by the Bureau of Aeronautics, giving all available information has been included in this publication. Further, to assist in identifying Japanese aircraft, line drawings, or renderings made from scale drawings are also shown.

2. It will be seen in the List of Japanese Aircraft the following order of identification has been used, i. e., Type, Service, Classification and Code Name. Thus the most familiar Japanese fighter is designated "TYPE 0 MARK 1 ARMY AND NAVY SINGLE ENGINE FIGHTER, ZEKE." It should be emphasized that the code name is not a complete replacement of the proper name, instead it is an excellent, brief, but positive, reference to one particular type of Japanese aircraft, especially for use in dispatches and combat reports. This is true even though the particular type of aircraft may be made by more than one manufacturer. Attention is called to the fact that, with respect to Zeke and many other Japanese aircraft types, positive evidence has been obtained indicating:

- a. That the Japanese never use the "00" in designating these aircraft.
- b. That it is known to be manufactured by both the Mitsubishi and the Nakajima factories.
- c. That Nagoya is a geographical location of one of the Mitsubishi factories and the term "Nagoya Zero" is an erroneous method of naming the aircraft.
- d. That the Japanese do not refer to their aircraft using the manufacturer's names.

3. The type number of a Japanese aircraft generally indicates the year in which it was put into service. Type 97, for example, was derived from the Japanese year 2597, or our year 1937; Type 0 or Zero likewise was derived from the year 2600, or our year 1940. The use of "00" or "01" is not considered accurate in view of factual information. Another method in use is to designate the type of aircraft by the year of the present Emperor's reign in which it was put into service. For example, a Type 15 Patrol Bomber (details of which are unknown) would probably mean that this aircraft was put into service in the 15th year of Showa (1940). Aircraft which appear in this publication have been classified according to type in the following order:

- Fighters (including seaplanes)
- Observation and Reconnaissance (including seaplanes)
- Torpedo and Dive Bombers (including seaplanes)
- Light Bombers (single engine)
- Medium Bombers (twin engine carrying a medium load)
- Heavy Bombers (only those with four engines)
- Flying Boats (Patrol Bombers)

4. A table showing the factors for use in converting distances, quantities and weights in the various systems has been included in this publication. It was felt that this table would be particularly useful to Intelligence Officers for conversion of Japanese measurements into ours and vice versa.

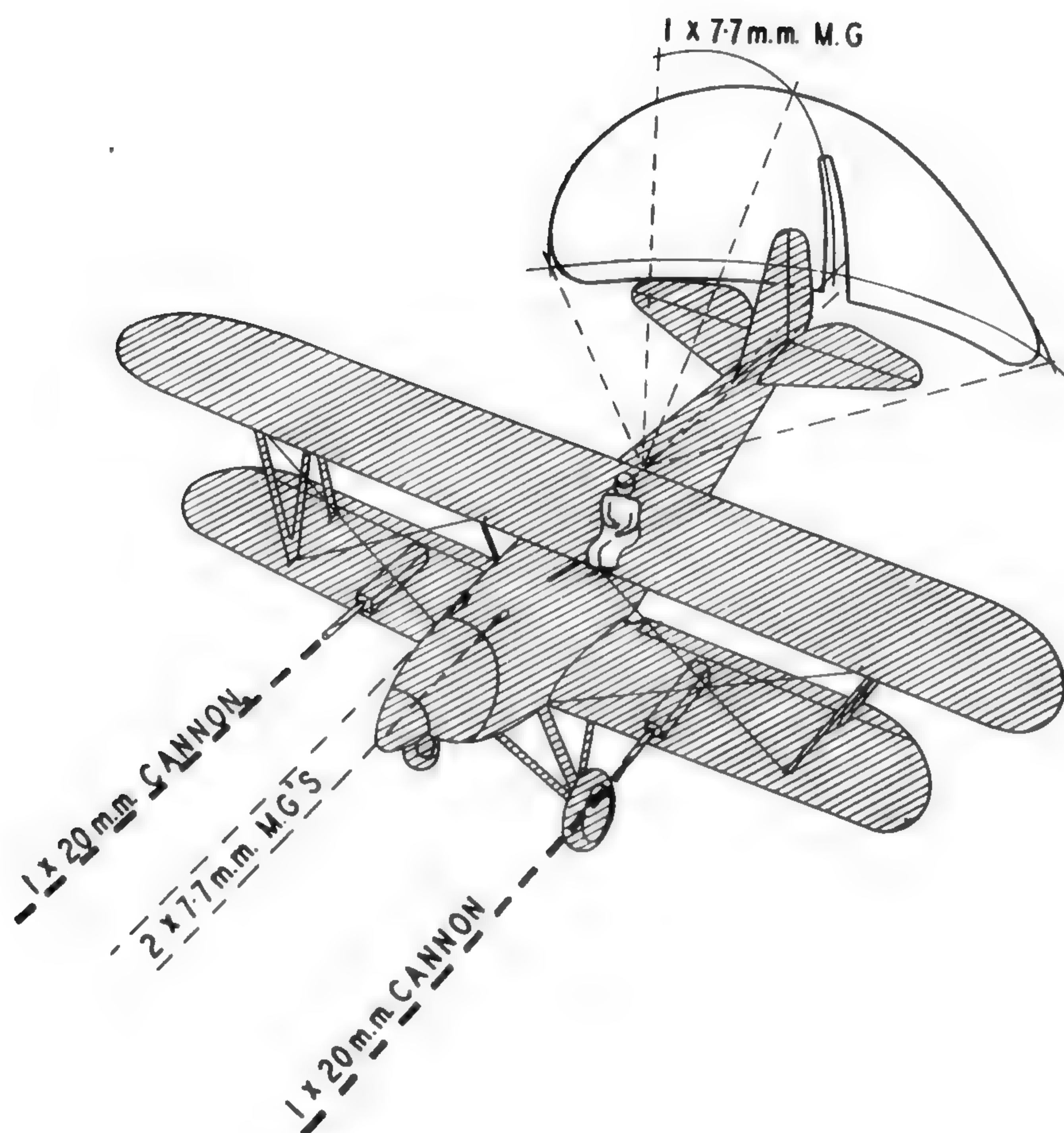
5. Five changes covering additions, deletions and corrections have so far been made (July 1943). From time to time further changes will be made as new information in respect to Japanese aircraft becomes available.

CONVERSION FACTORS

To Convert	Into	Multiply By
Acres	Hectares	0.405
C°	F°	$(F° - 32) \times 5/9$
Centimetres	Inches	0.3937
Cubic Centimetres	Cubic Inches	0.061
Cubic Feet	Cubic Metres	0.0283
Cubic Inches	Cubic Centimetres	16.39
Cubic Inches	Litres	0.0164
Cubic Metres	Cubic Feet	35.31
Cubic Metres	Cubic Yards	1.308
Cubic Yards	Cubic Metres	0.7646
Cwts.	Quintals	0.508
F°	C°	$(C° \times 9/5) + 32$
Feet	Metres	0.305
Feet per min.	Miles per hour	0.01137
Feet per sec.	Miles per hour	0.682
Feet per sec.	Metres per min.	18.288
Force de Cheval	Horse-power	0.986
Gallons	Litres	4.546
Gallons (water)	Cubic Feet	0.161
Grains	Grammes	0.0648
Grammes	Grains	15.432
Grammes	Ounces	0.03527
Hectares	Acres	2.47
Horse-power	Force de Cheval	1.014
Imperial Gallons	U.S. Gallons	1.205
Inches	Centimetres	2.5399
Inches	Feet	0.0833
Inches	Metres	0.0254
Inches	Millimetres	25.4
Inches	Yards	0.0277
Kilogrammes (1,000 grms)	Lb.	2.205
Kilogrammes	Ounces	35.27
Kilometres	Miles	0.621
Knots	Miles per hour	1.151
Lb. (7,000 grms)	Kilogrammes	0.454
Litres	Cubic Inches	61.0
Litres	Gallons	0.220
Litres	Pints	1.76
Metres	Feet	3.28
Metres	Inches	39.37
Metres	Yards	1.094
Metres per min.	Feet per sec.	0.0547
Metres per sec.	Miles per hour	2.24
Miles	Kilometres	1.609
Miles per hour	Feet per min.	88
Miles per hour	Feet per sec.	1.467
Miles per hour	Knots	0.868
Miles per hour	Metres per sec.	0.447
Millimetres	Inches	0.039
Ounces	Grammes	28.35
Ounces	Kilogrammes	0.02835
Pints	Litres	0.568
Quintals	Cwts.	1.97
Square Centimetres	Square Inches	0.155
Square Feet	Square Metres	0.0929
Square Inches	Square Centimetres	6.4516
Square Kilometres	Square Miles	0.3862
Square Metres	Square Feet	10.76
Square Metres	Square Yards	1.197
Square Miles	Square Kilometres	2.589
Square Yards	Square Metres	0.8361
Tonnes	Tons	0.9842
Tons	Tonnes	1.016
U.S. Gallons	Imperial Gallons	0.830
Yards	Metres	0.914

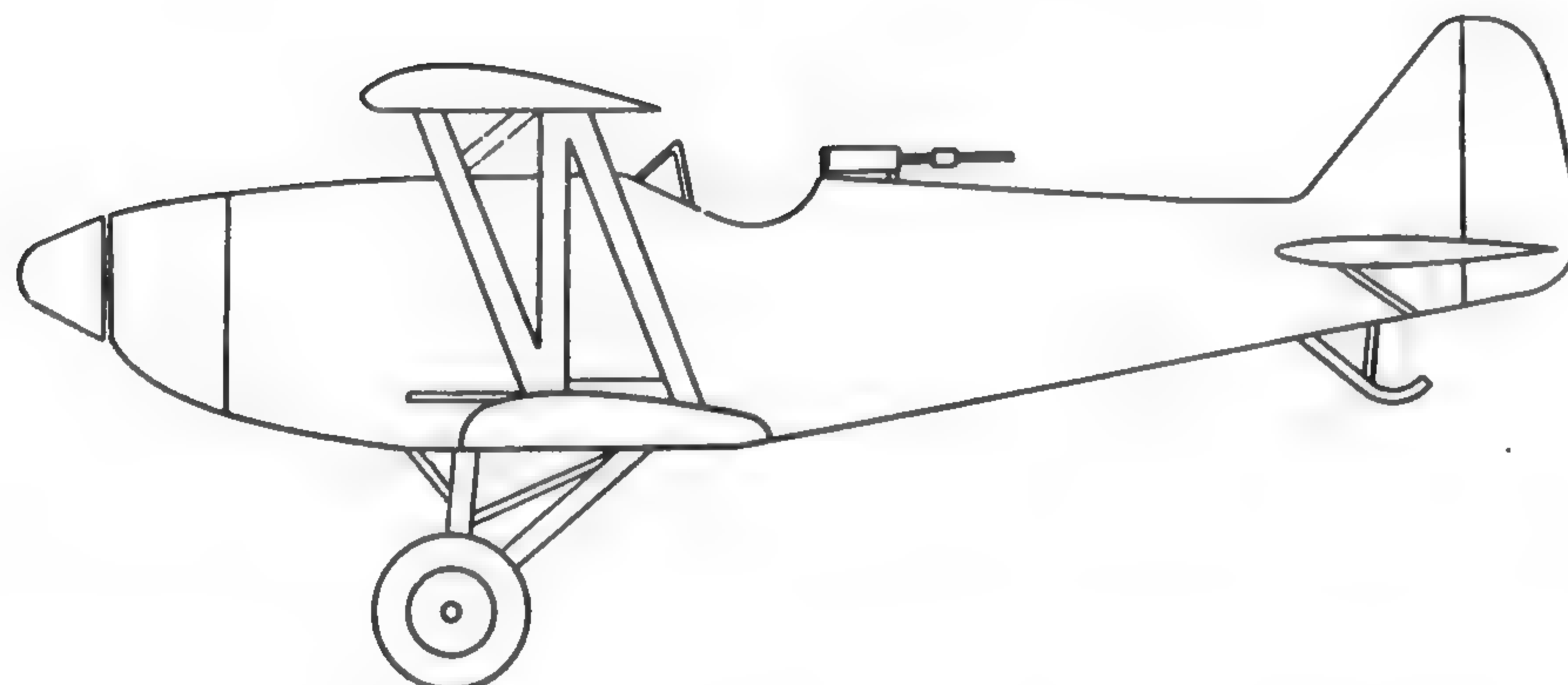
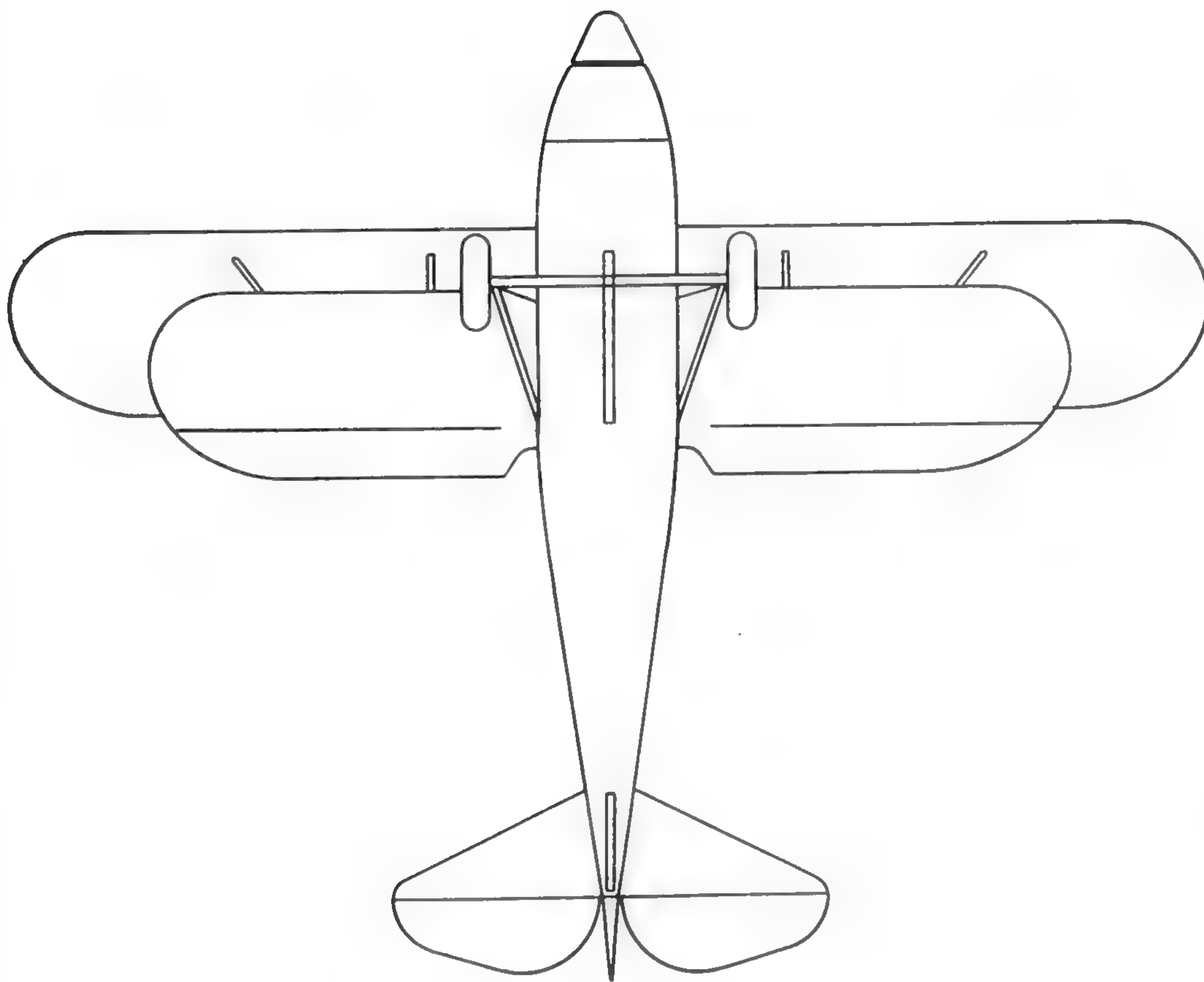
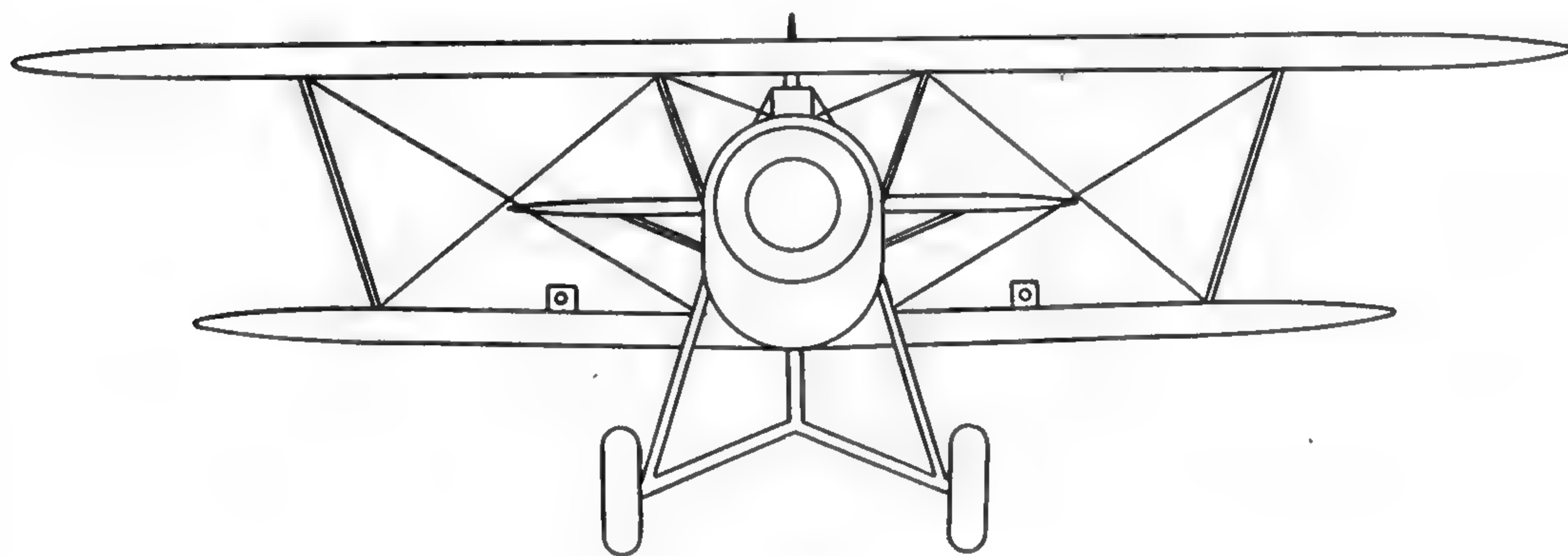
KAWASAKI TYPE 95 (MOD) ARMY AND NAVY SINGLE ENGINE
FIGHTER

“PERRY”



KAWASAKI TYPE 95 (MOD) ARMY AND NAVY SINGLE ENGINE
FIGHTER

“PERRY”



KAWASAKI TYPE 95 (MOD) ARMY AND NAVY SINGLE ENGINE
FIGHTER

"PERRY"

Originally Manufactured by: Kawasaki

Also Manufactured by:

Crew: One

Engine: One Kawasaki liquid-cooled, 820 h.p. at 10,000 ft.

Dimensions: Span, 29' 0" Length, 23' 4" Height, 10' 3"

Empty	Normal	Max. Fuel
-------	--------	-----------

Weights:

Maximum Speed: 270 miles per hour at 10,000 ft.

Rate of Climb:

Service Ceiling:

	RANGE				
	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Cruise</i>					
<i>Extra Fuel</i>					
<i>Most Econ.</i>					

Radio:

Armour:

Armament: 2 x 7.7 mm. machine-guns synchronized through propellor
1 x 7.7 mm. machine-gun, flexible, rear
2 x 20 mm. cannon (one in each wing)

Ammunition:

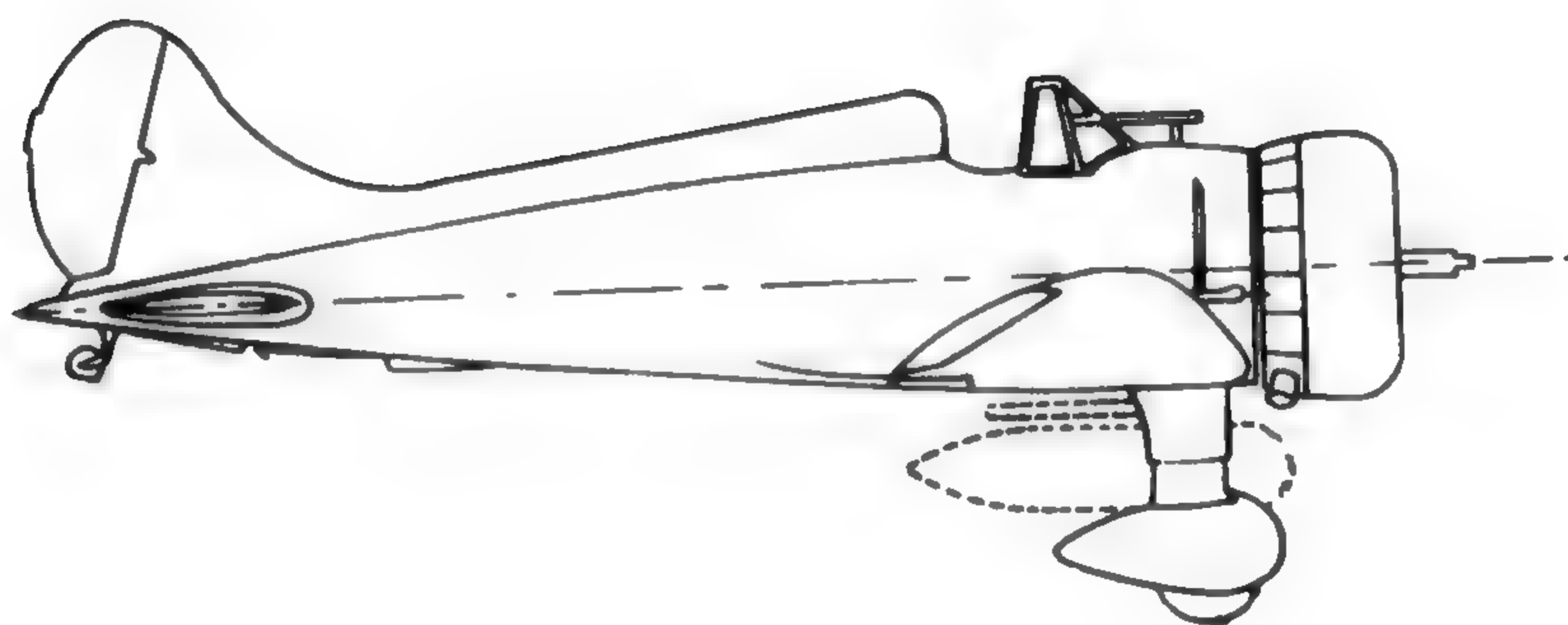
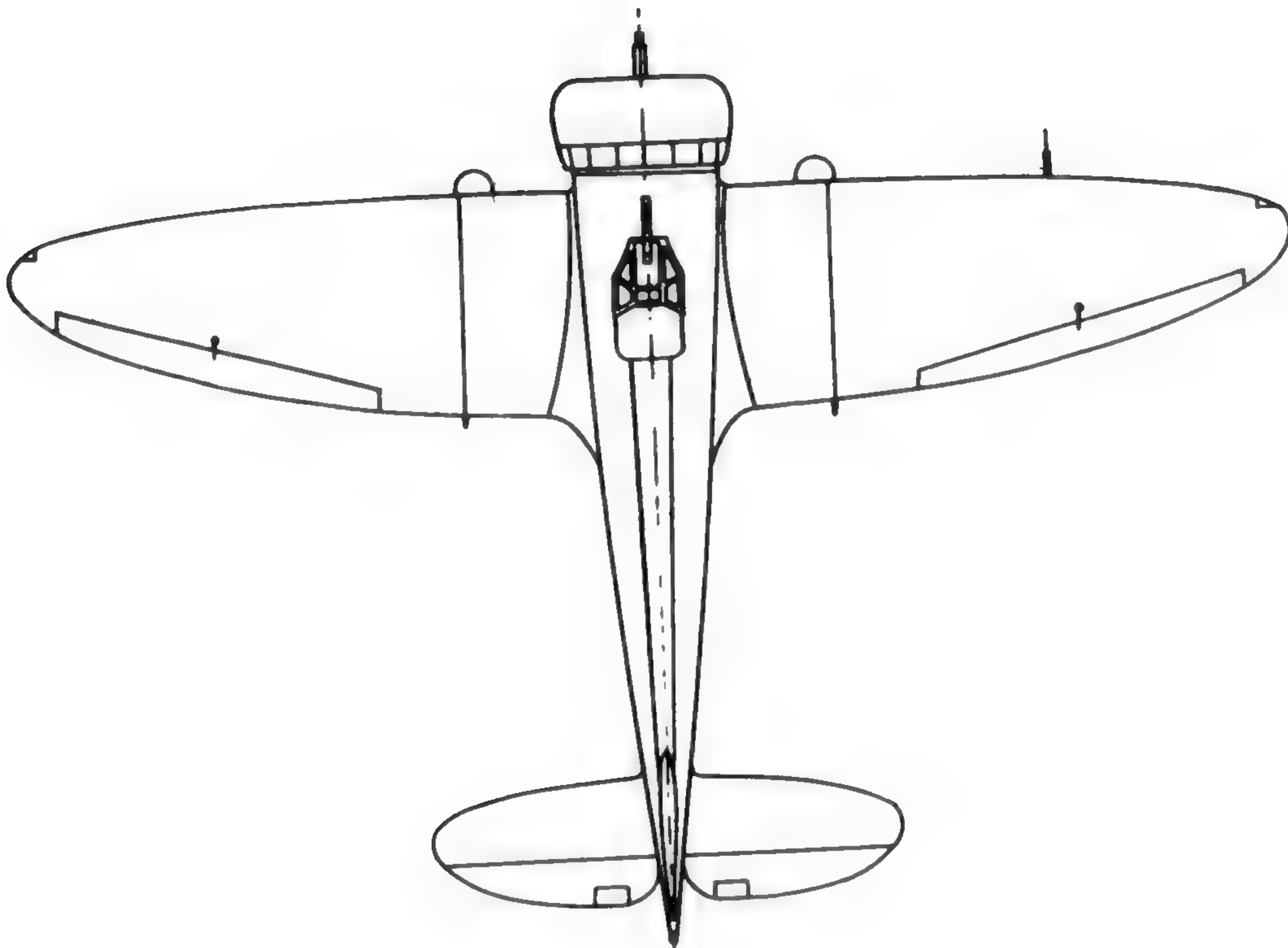
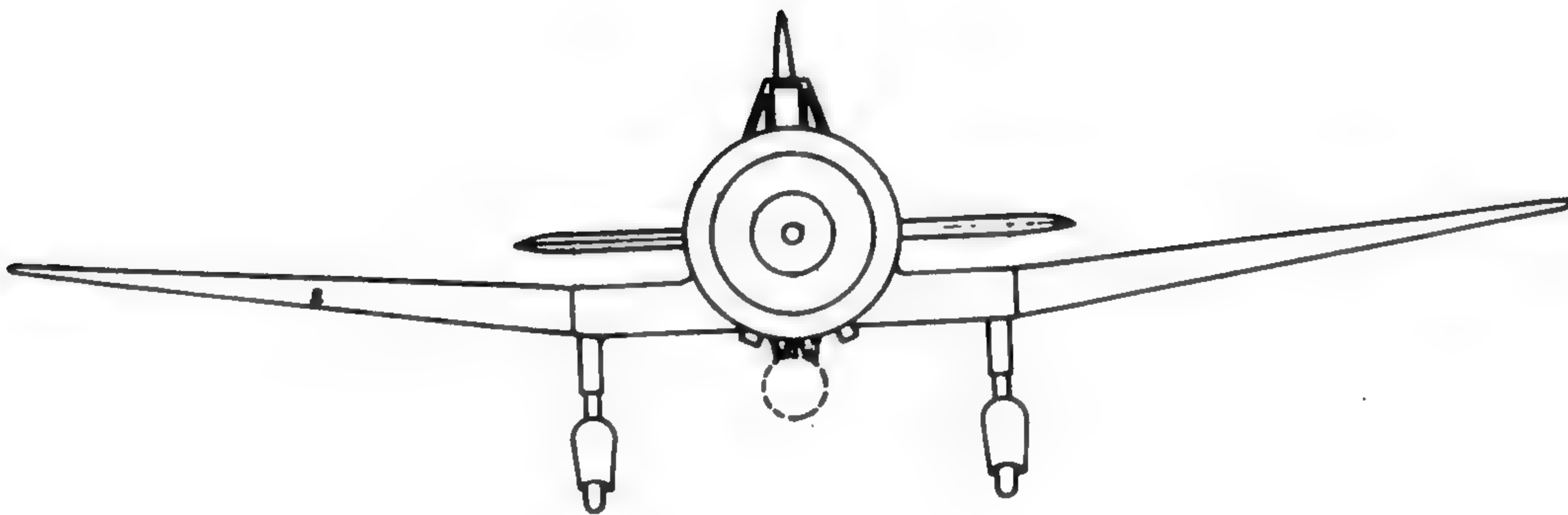
Vulnerability: No self-sealing tanks

Remarks: May carry 4 x 50 lb. Bombs

Tactical Data:

TYPE 96 NAVY SINGLE ENGINE FIGHTER

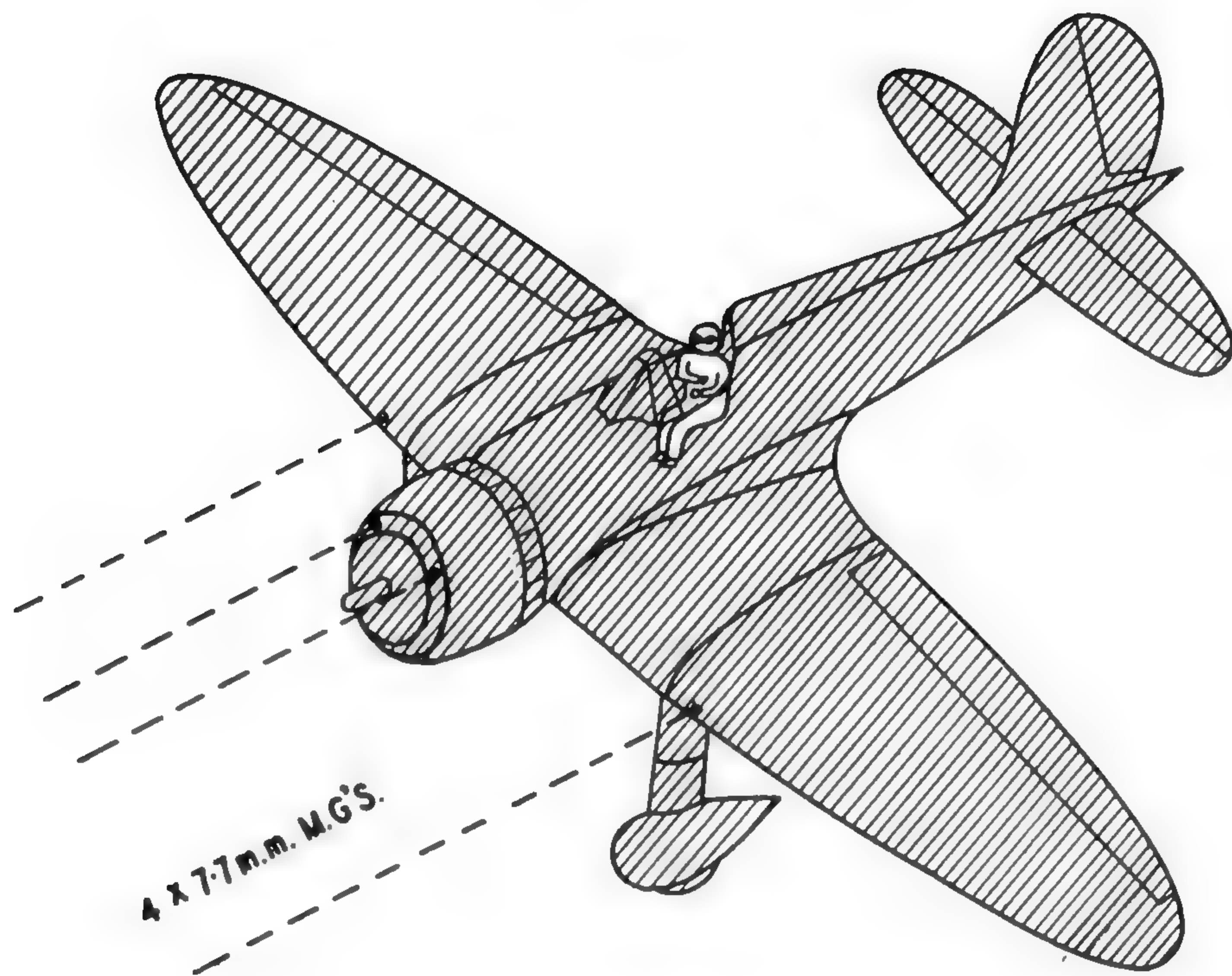
"CLAUDE"



TYPE 96 NAVY SINGLE ENGINE FIGHTER

"CLAUDE"

NAVY



MITSUBISHI TYPE 96 NAVY SINGLE ENGINE FIGHTER

"CLAUDE"

NAVY

Originally Manufactured by: Mitsubishi from Nakajima design

Also Manufactured by: Nakajima

Crew: One

Engine: One Kinsei 9-cylinder air-cooled radial, developing 730 h.p.
at 9,000 ft.

Dimensions: Span, 36' Length, 24' 7" Height, 9' 10"

	Empty	Normal	Max. Fuel
<i>Weights:</i>	3,250 lbs.	4,400 lbs.	4,700 lbs.

Maximum Speed: 250 miles per hour at 9,000 ft.

Rate of Climb: To 15,000 ft. in 6 min. 15 sec.

Service Ceiling: 33,000 ft.

RANGE

	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Cruise</i>	440	220	nil	80	96
<i>Extra Fuel</i>	625	205	nil	80	96
<i>Most Econ.</i>	980	125	nil	112	135

Radio:

Armour: Nil

Armament: 2 x 7.7 mm. machine-guns, synchronized
2 x 7.7 mm. machine-guns, fixed, one in each wing

Ammunition: 550 rounds per gun

Vulnerability: Tanks are not self-sealing

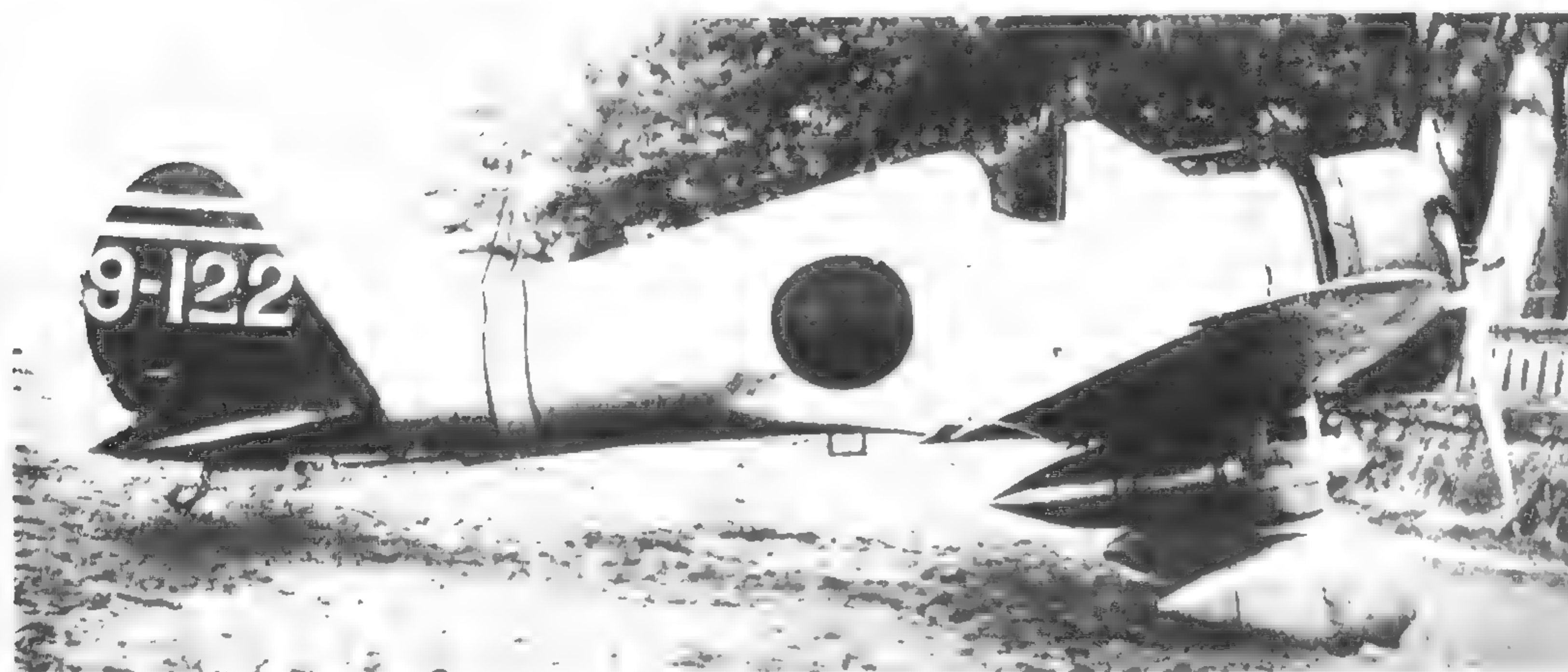
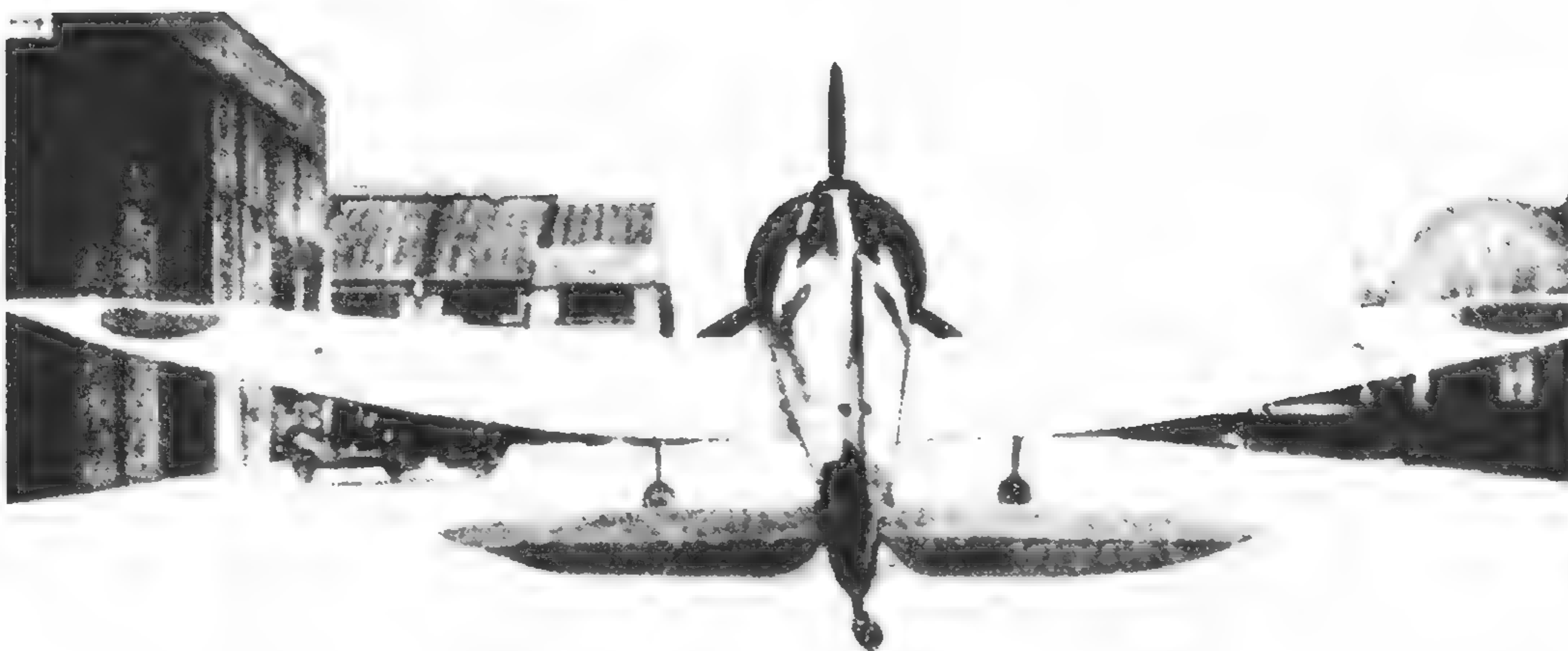
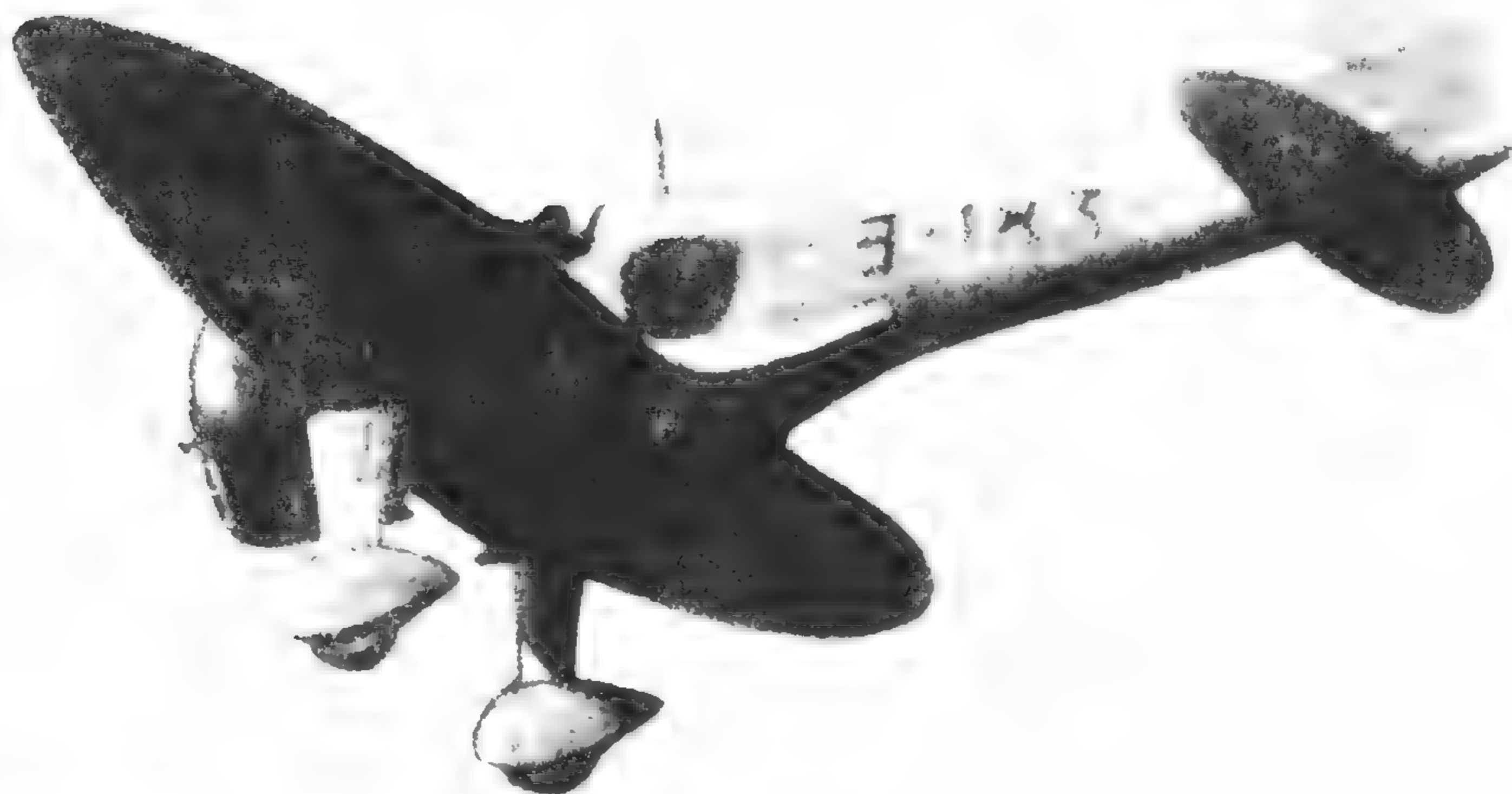
Remarks: Some models have small bomb carriers underneath wing
outside of airscrew arc. May be used for dive bombing. (May
carry 2 x 30 kg. bombs.)

Tactical Data:

By [illegible] [illegible], Date 2/27/11

MITSUBISHI TYPE 96 NAVY SINGLE ENGINE FIGHTER

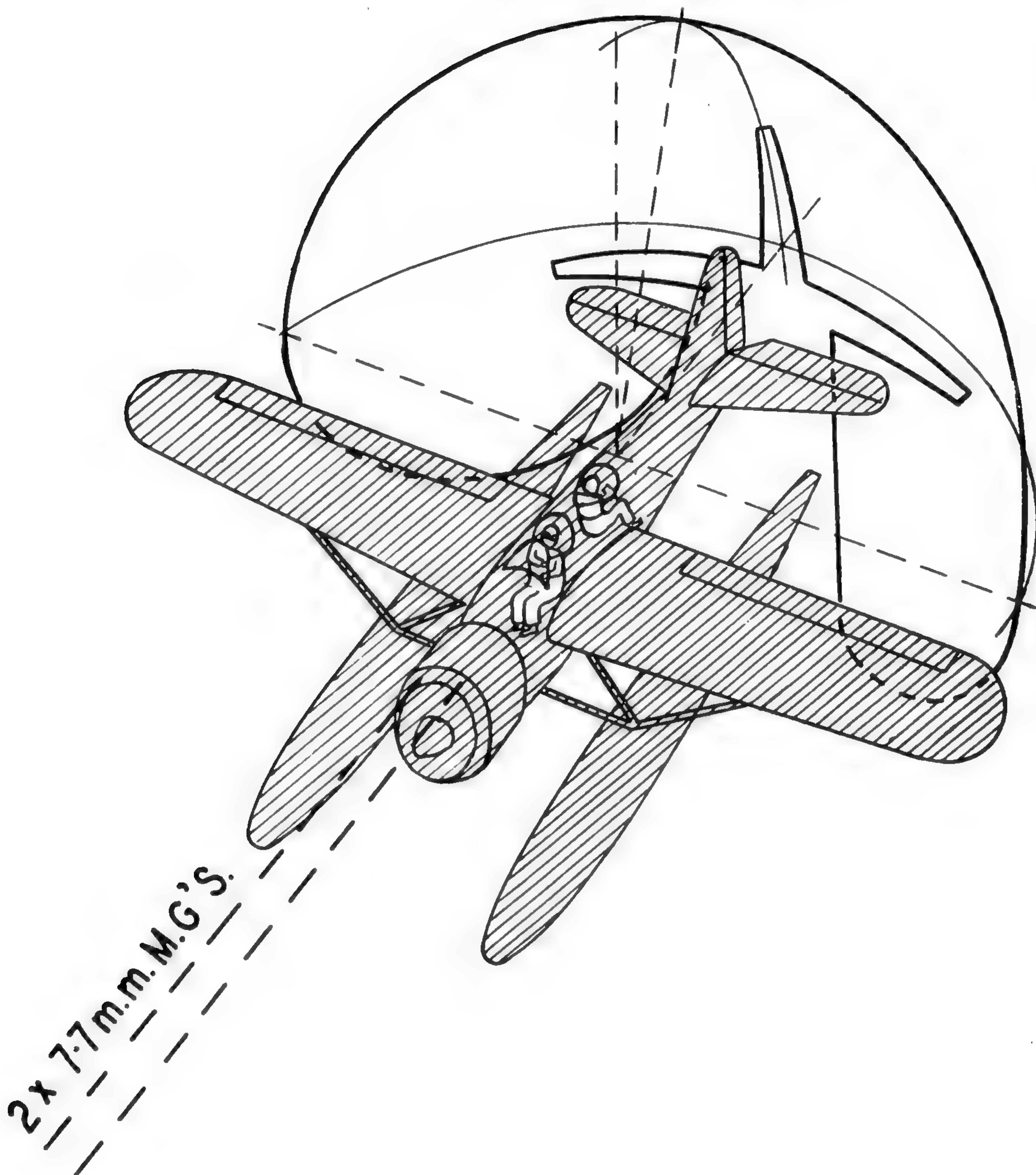
"CLAUDE"



NAKAJIMA TYPE 97 NAVY SINGLE ENGINE SEAPLANE FIGHTER

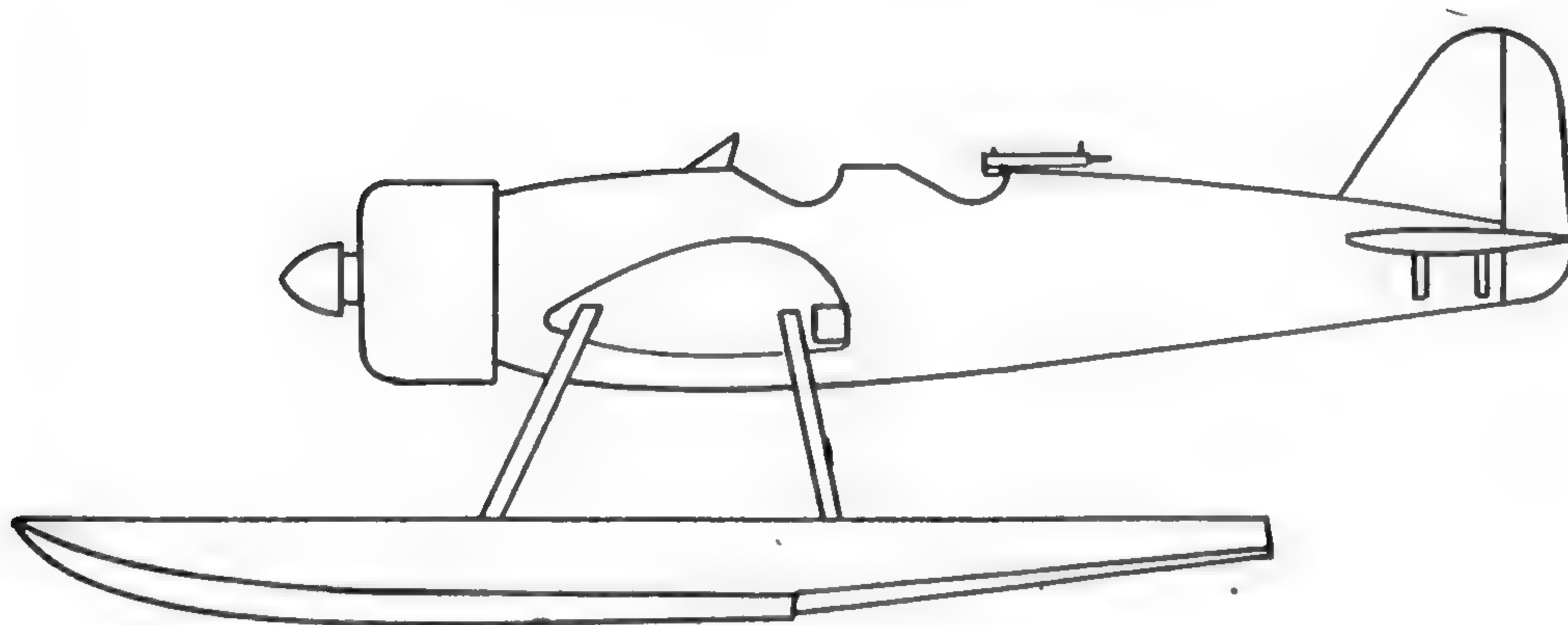
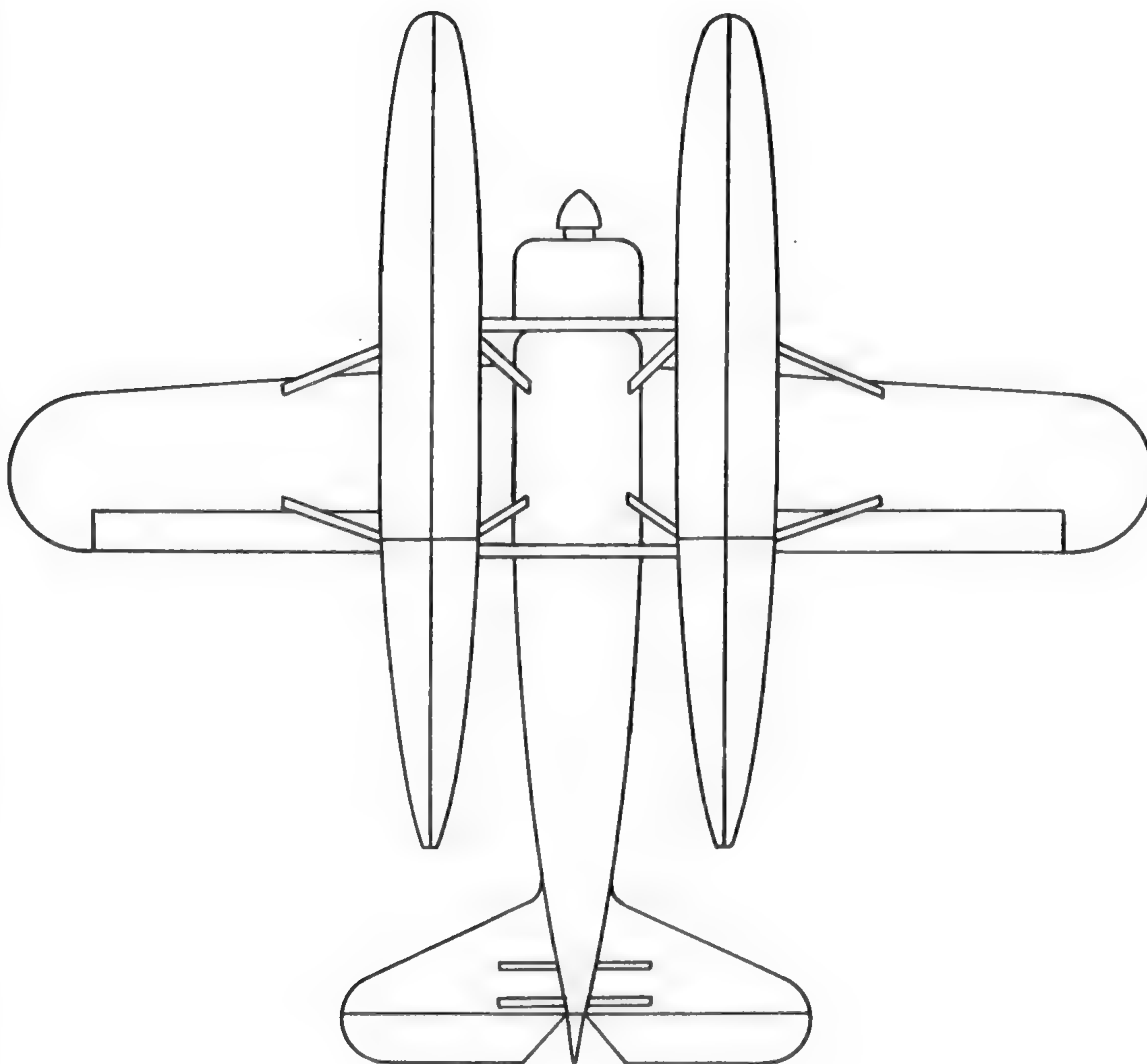
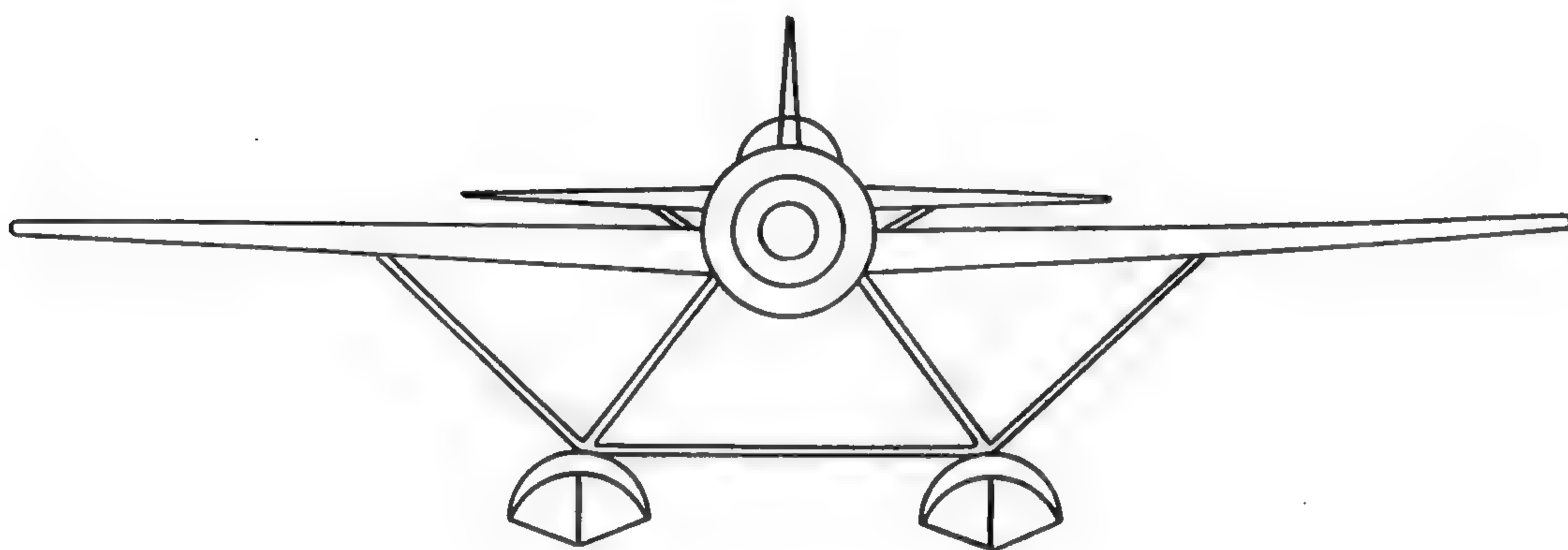
"ADAM"

2 x 7.7 m.m. M.G.'S.



NAKAJIMA TYPE 97 NAVY SINGLE ENGINE SEAPLANE FIGHTER

"ADAM"



Change 1

16-2

NAKAJIMA TYPE 97 NAVY SINGLE ENGINE SEAPLANE FIGHTER

"ADAM"

Originally Manufactured by: Nakajima

Also Manufactured by:

Crew: Two

Engines: One Nakajima radial, air-cooled, developing 750 h.p. at 13,000 ft.

Dimensions: Wing Span 37' 0" Length 33' 6" Height 11' 4"

	Empty	Normal	Full Military Load
<i>Weights:</i>	3,870	5,300	

Maximum Speed: 220 miles per hour.

Rate of Climb:

Service Ceiling: 27,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>					
<i>Normal</i>	325	190		85	102
<i>Max. Fuel</i>					

Radio:

Armour:

Armament: 2 x 7.7mm. M.Gs. synchronized through propellor
2 x 7.7mm. M.Gs. flexible dorsal

Ammunition:

Vulnerability:

Remarks:

Tactical Data:

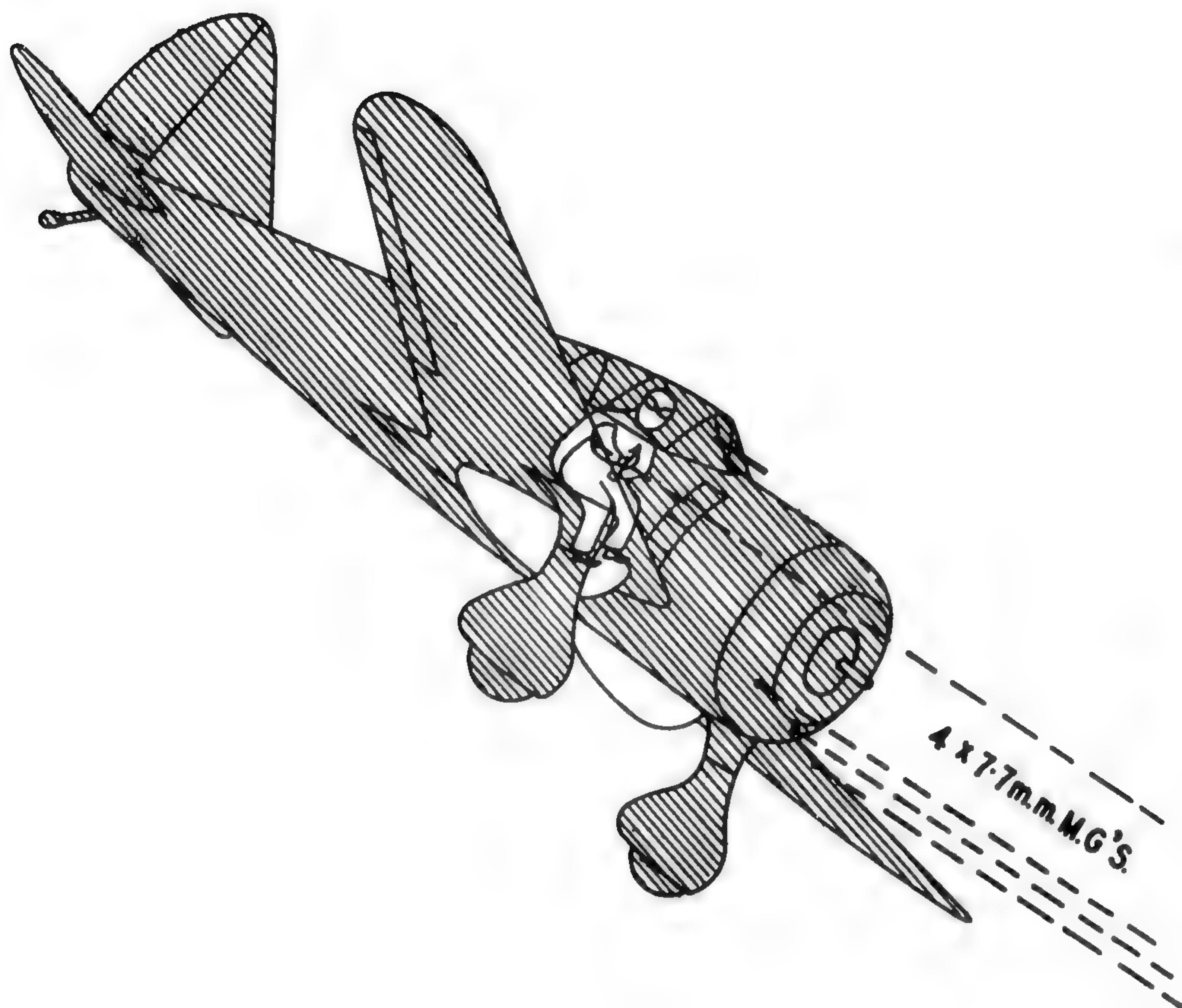
TYPE 97 ARMY AND NAVY SINGLE ENGINE FIGHTER

“NATE”



TYPE 97 ARMY AND NAVY SINGLE ENGINE FIGHTER

"NATE"



TYPE 97 ARMY AND NAVY SINGLE ENGINE FIGHTER

"NATE"

Originally Manufactured by: Nakajima.

Also Manufactured by: Kawasaki and Mitsubishi.

Crew: One.

Engine: One Nakajima Hikari, 9 cylinder, air cooled radial engine.

Single speed supercharger. Horsepower ratings:

Normal—700 h. p. at sea level.

790 h. p. at 11,500 ft.

Military—810 h. p. at sea level.

915 h. p. at 12,000 ft.

Dimensions: Wing span 35.8' Length 24.3' Wing area 200 sq. ft.

	Empty	Normal Fighter	Extra Fuel
Weights:	3, 654 lbs.	4, 643 lbs.	5, 200 lbs.

Maximum Speed: (Military Power)

243 m. p. h. at sea level, normal load.

284 m. p. h. at 13,500 ft., normal load.

232 m. p. h. at sea level, extra fuel.

270 m. p. h. at 13,500 ft., extra fuel.

Rate of Climb: (Military Power)

With normal load:

2,870 ft. per min. at sea level.

3,050 ft. per min. at 12,000 ft.

With extra fuel in two jettisonable tanks:

2,460 ft. per min. at sea level.

2,570 ft. per min. at 12,000 ft.

Service Ceiling: 35,100 ft., normal load.

33,100 ft., extra fuel.

RANGE (Normal Power)

Condition	Range Miles	Speed M. P. H.	Altitude Feet	Fuel U. S. Gal.
Normal load, 90% Vm.	300	235	11, 500	84
Normal load, Max. Range	620	143	11, 500	84
Extra fuel, 90% Vm.	605	220	11, 500	169
Extra fuel, Max. Range	1, 195	140	11, 500	169

Radio: Two-way, R/T, but not always installed.

Armor: None.

Armament: 2 x 7.7 mm. machine guns in the nose.

Ammunition: 550 rounds per gun.

Bombs: No provision has been made for carrying bombs.

Vulnerability: No protection is provided for pilot, fuel tanks or engine.

A concentric ring oil cooler in front of the engine is a vulnerable spot.

Remarks: The range is computed on five minutes operation at rated take off horsepower plus rated power climb to 11,500 feet.

Tactical Data: High rate of climb and extremely maneuverable.

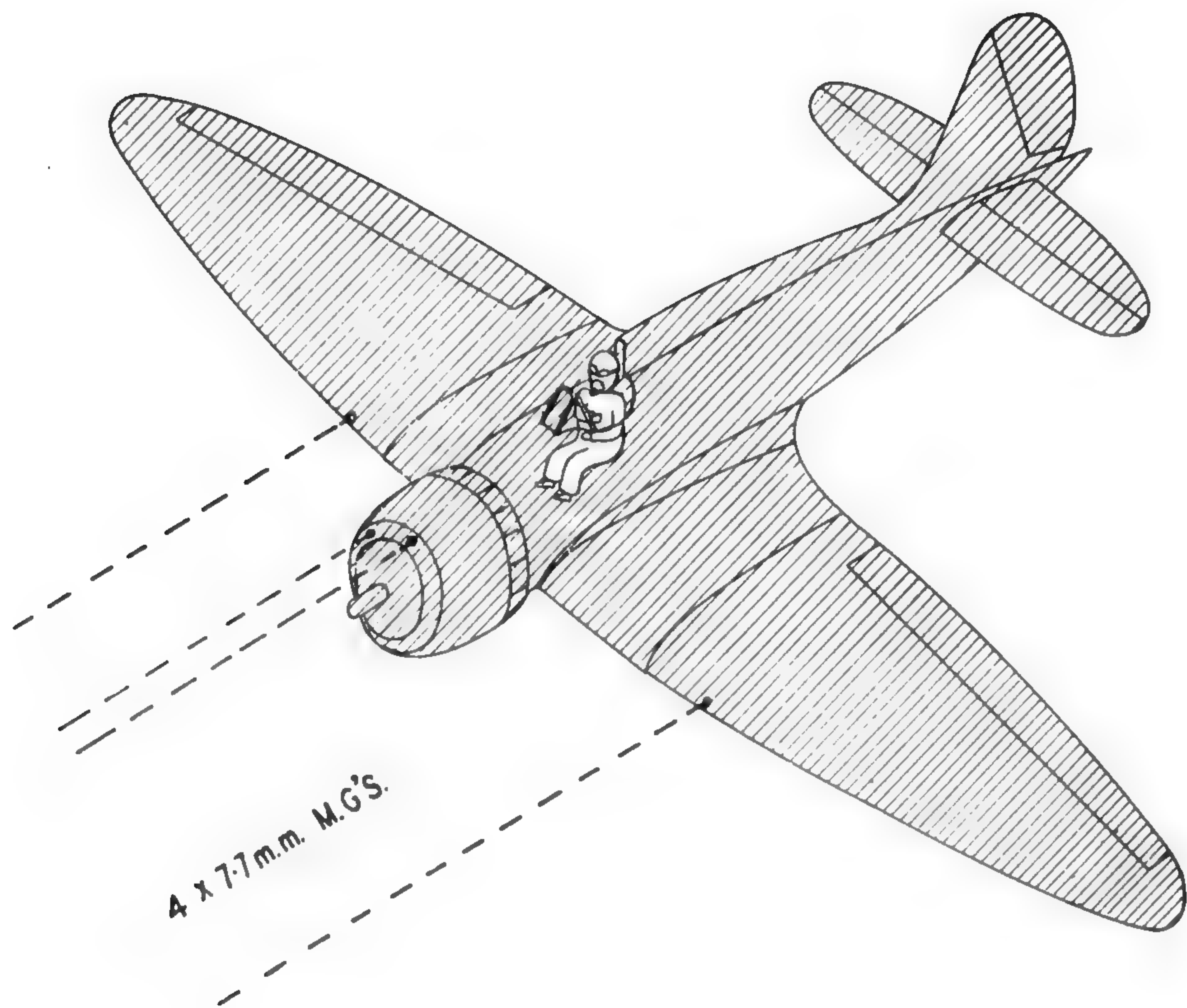
TYPE 97 ARMY AND NAVY SINGLE ENGINE FIGHTER
"NATE"



NAKAJIMA TYPE 97 (MOD) NAVY SINGLE ENGINE FIGHTER

“ABDUL”

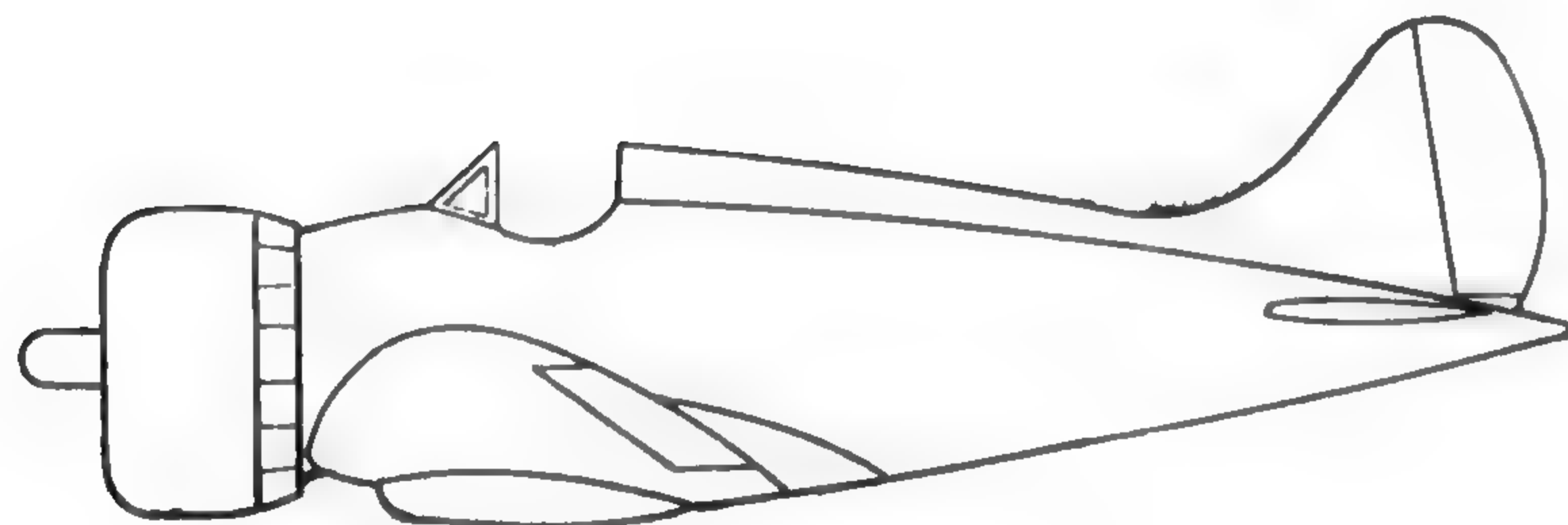
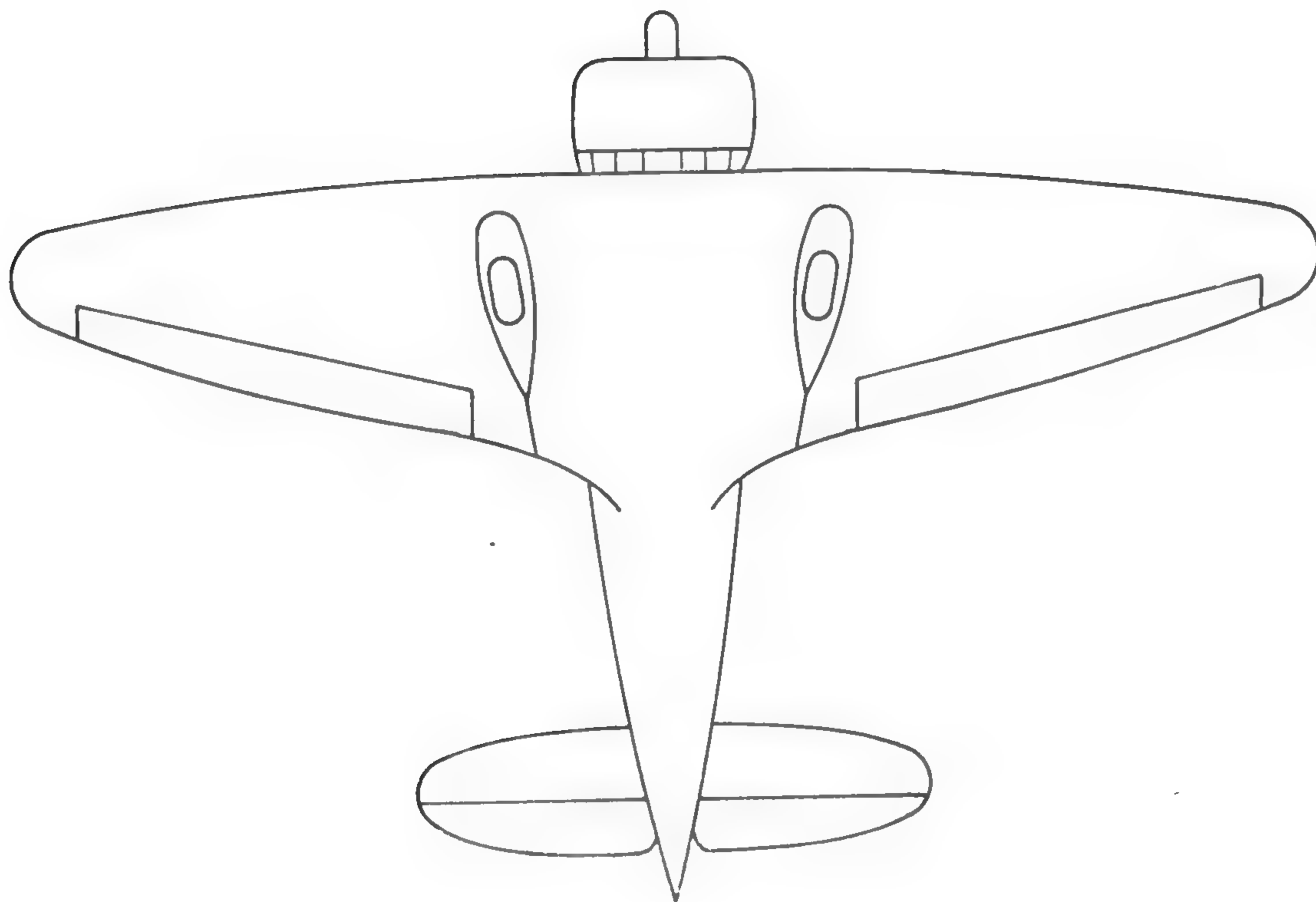
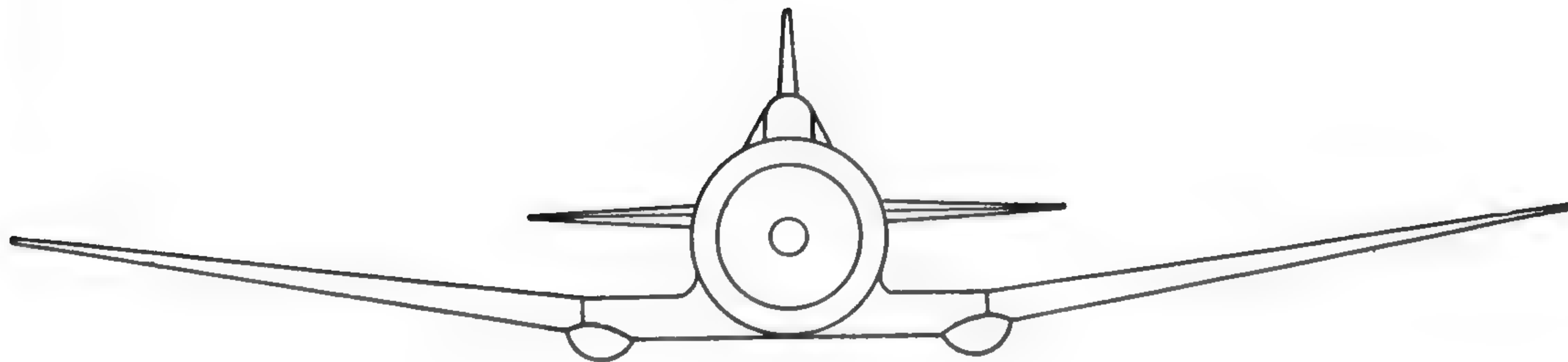
NAVY



NAKAJIMA TYPE 97 (MOD) NAVY SINGLE ENGINE FIGHTER

“ABDUL”

NAVY



NAKAJIMA TYPE 97 (MOD) NAVY SINGLE ENGINE FIGHTER

“ABDUL”

Originally Manufactured by: Nakajima or Mitsubishi

Also Manufactured by: Possibly Kawasaki

Crew: One

Engine: One Mitsu 109 (?) 9-cylinder air-cooled radial, developing 650 h.p. at 9,000 ft.

Dimensions: Span, 40' 0" Length, 25' 0" Height, 10' 0"

	Empty	Normal	Max. Fuel
<i>Weights:</i>	3,350 lbs.	4,500 lbs.	4,800 lbs.

Maximum Speed: 265 miles per hour at 9,000 ft.

Rate of Climb: To 15,000 ft. in 7.1 minutes.

Service Ceiling: 30,000 ft.

RANGE

	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Cruise</i>	590	225	nil	80	96
<i>Extra Fuel</i>	760	200	nil	110	132
<i>Most Econ.</i>	1,000	140	nil	110	132

Radio: W, T, possibly two-way R/T on high frequency.

Armour: Nil

Armament: 2 x 7.7 mm. machine-guns, synchronized
2 x 7.7 mm. machine-guns, fixed (one in each wing)
Alternate: Three 7.7 mm. machine-guns
(one synchronized and one in each wing)

Ammunition: 550 rounds per gun

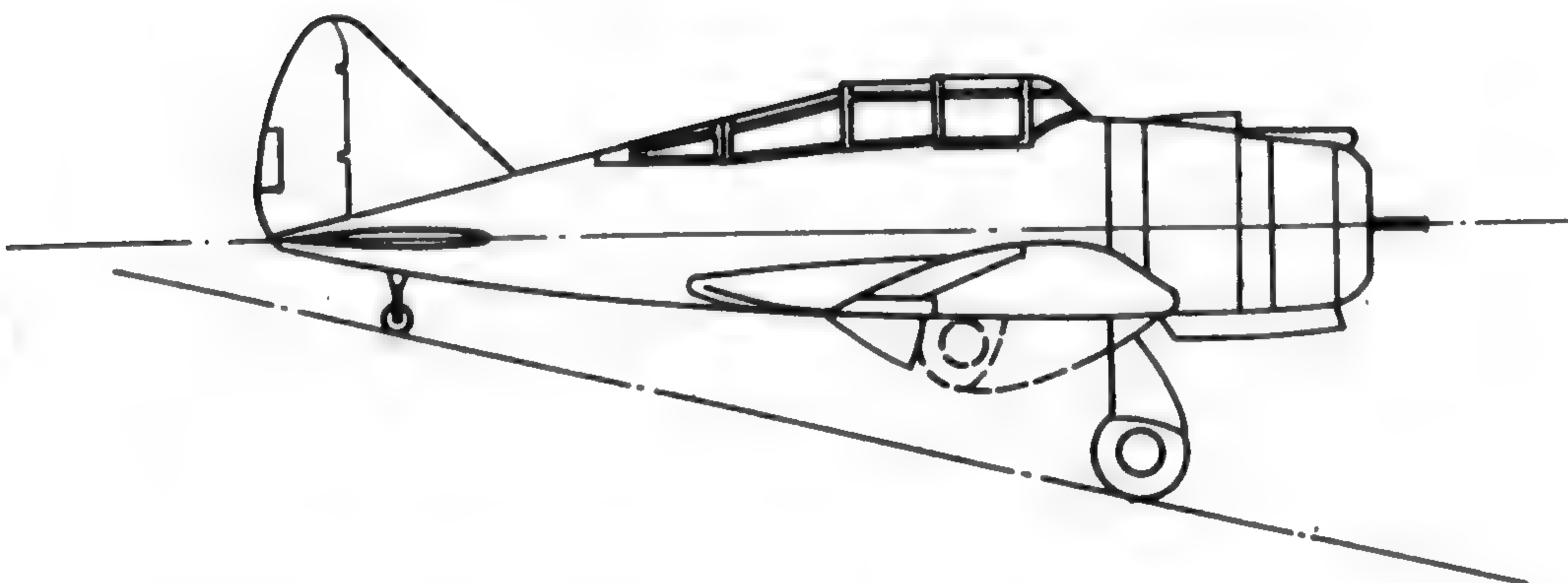
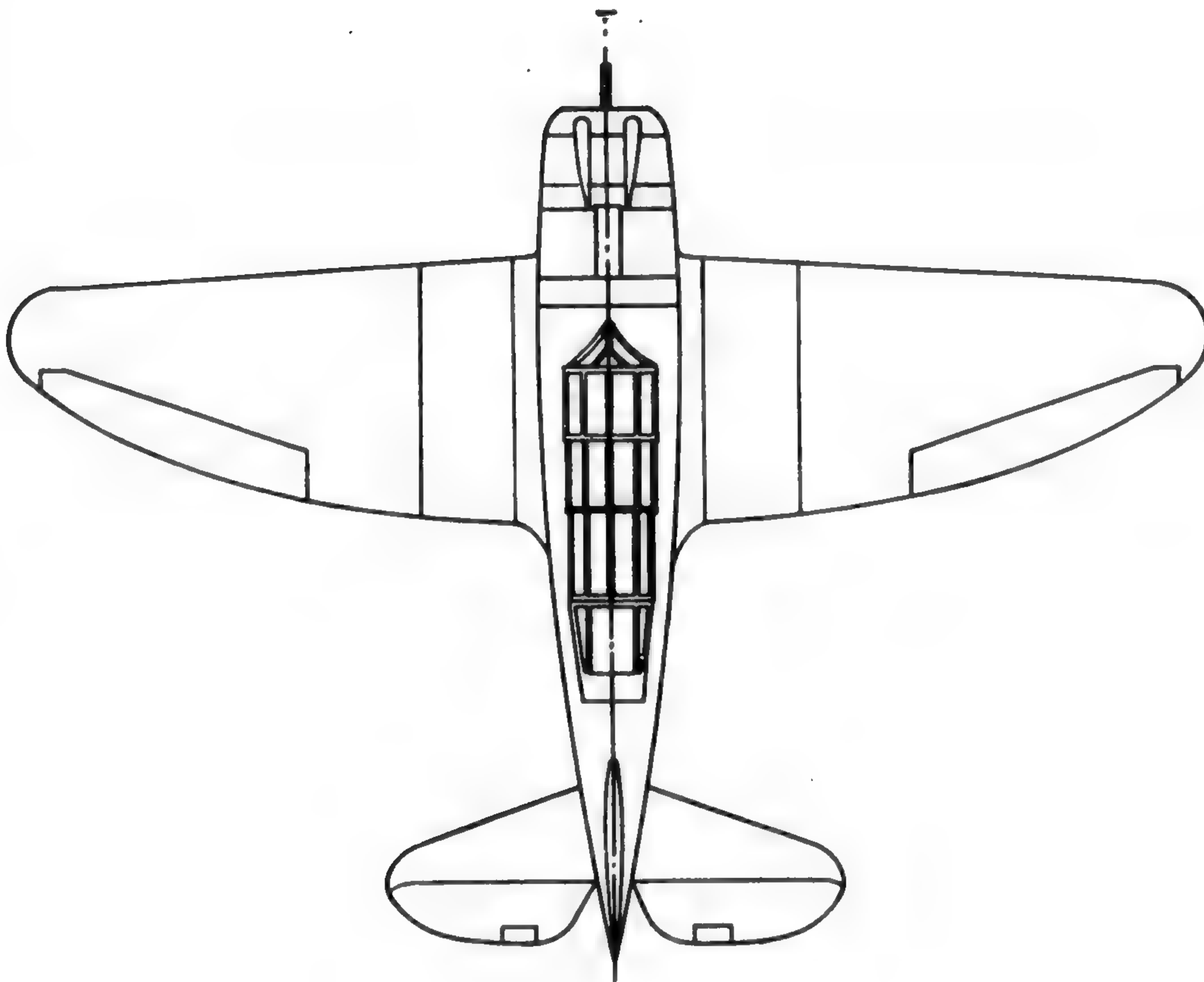
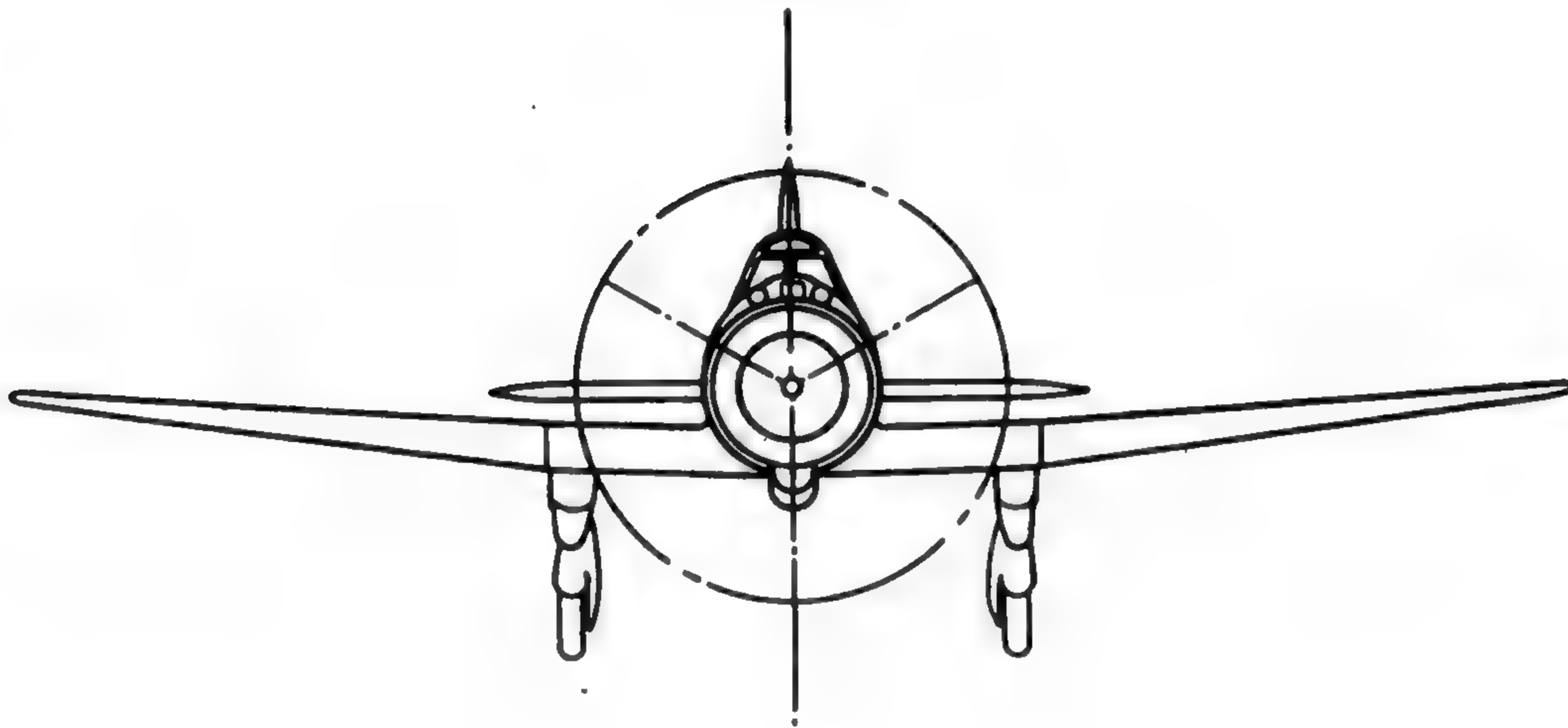
Vulnerability: Tanks are not self-sealing

Remarks:

Tactical Data:

TYPE 98 ARMY AND NAVY SINGLE ENGINE FIGHTER

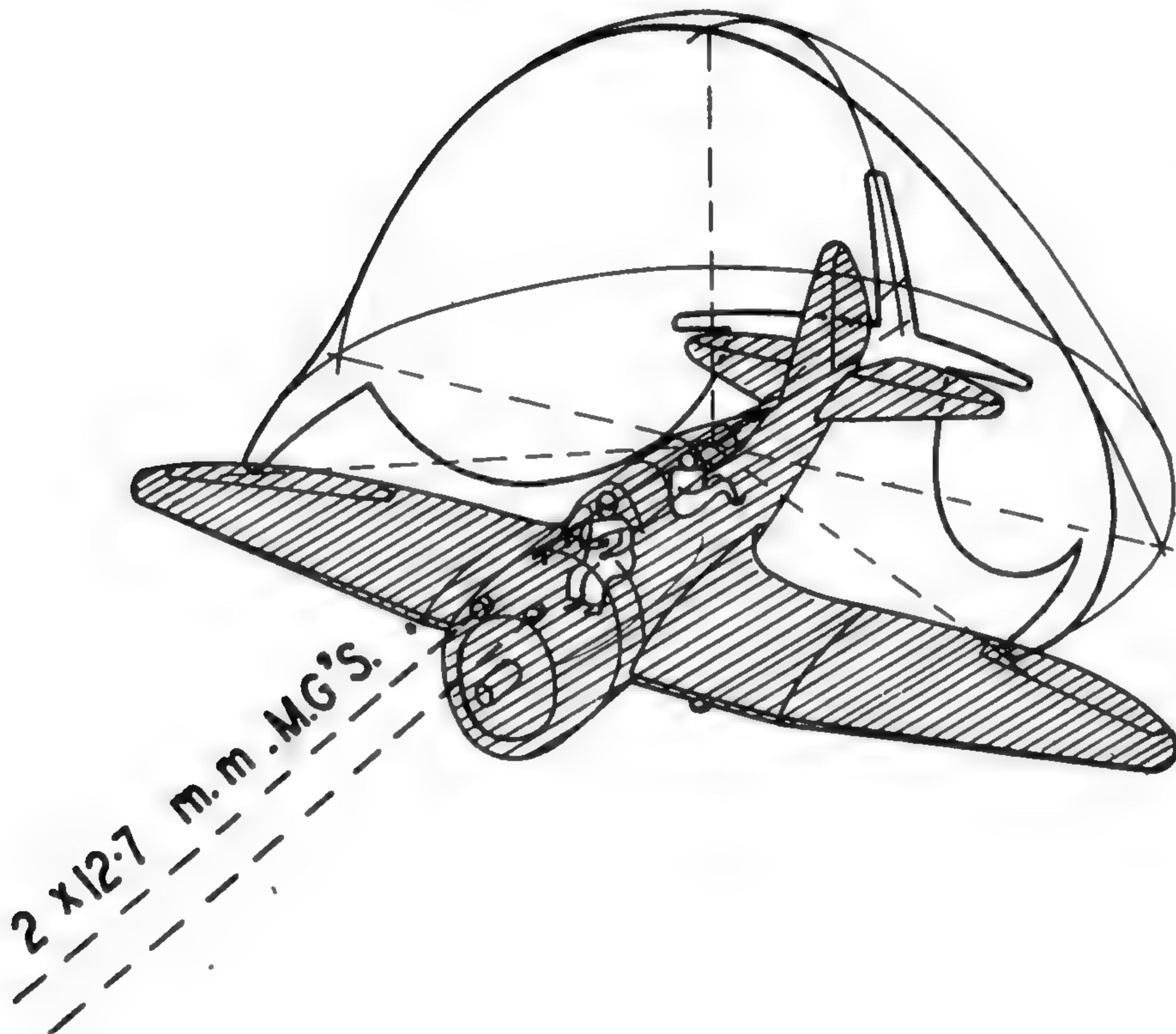
"DICK"



TYPE 98 ARMY AND NAVY SINGLE ENGINE FIGHTER

"DICK"

1 x 7.7mm. M.G.



KAWASAKI TYPE 98 ARMY AND NAVY SINGLE ENGINE FIGHTER

"DICK"

Originally Manufactured by: Seversky

Also Manufactured by: Possibly by Mitsubishi or Kawasaki

Crew: Two

Engine: One 1,000 h.p. Wright Cyclone 9-cylinder air-cooled radial

Dimensions: Span, 36' 0" Length, 25' 4" Height, 9' 6"

	Empty	Normal	Max. Fuel
<i>Weights:</i>	4,190 lbs.	6,437 lbs.	8,035 lbs.

Maximum Speed: 285 miles per hour at 10,000 ft.

Rate of Climb: 10,000 ft. in 6 minutes

Service Ceiling: 24,000 ft.

RANGE

	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Cruise</i>	740	242	nil	137	166
<i>Extra Fuel</i>	1,200	242	nil	310	373
<i>Max. Economy</i>	1,500	180	nil	310	373

Radio:

Armour:

Armament: 2 x 12.7 mm. machine-guns or 4 x 7.7 mm. machine-guns,
forward, synchronized through propellor
2 x 7.7 mm. machine-guns may also be carried in wings
1 x 7.7 mm. machine-gun, dorsal, flexible

Ammunition:

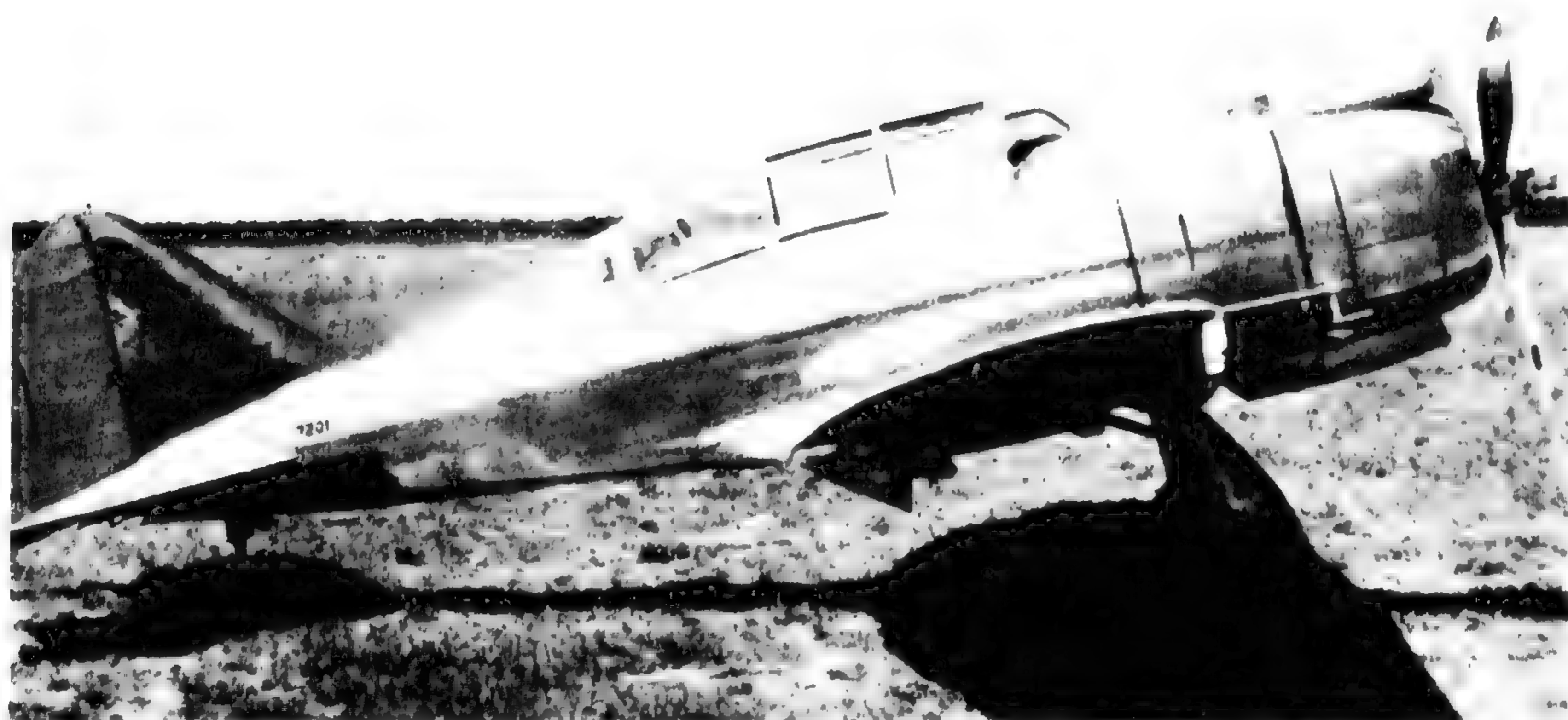
Vulnerability: No self-sealing tanks

Remarks: Provision is made for Camera. A maximum bomb load
of 500 lb. may be carried.

Tactical Data:

KAWASAKI TYPE 98 ARMY AND NAVY SINGLE ENGINE FIGHTER

"DICK"



MITSUBISHI TYPE 0 ARMY TWIN ENGINE FIGHTER

“HARRY”

Originally Manufactured by: Mitsubishi

Also Manufactured by:

Crew: One

Engines: Two B.M.W. liquid-cooled, 750 h.p. each.

<i>Dimensions:</i>	<i>Wing Span</i>	<i>Length</i>	<i>Height</i>
	Empty	Normal	Full Military Load

Weights:

Maximum Speed: 350 miles per hour.

Rate of Climb: 26,000 ft. in 15 minutes.

Service Ceiling: 31,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>					
<i>Normal</i>	500	280		110	133
<i>Max. Fuel</i>					

Radio:

Armour:

Armament: 2 x 20mm. cannon, forward wings, and
2 x 7.7mm. M.Gs. (position unknown)

Ammunition:

Vulnerability:

Remarks: Based on Fokker D-23. A subsequent development will
include fitting of Kinsei radial engines of 1000 h.p. each.

Tactical Data:

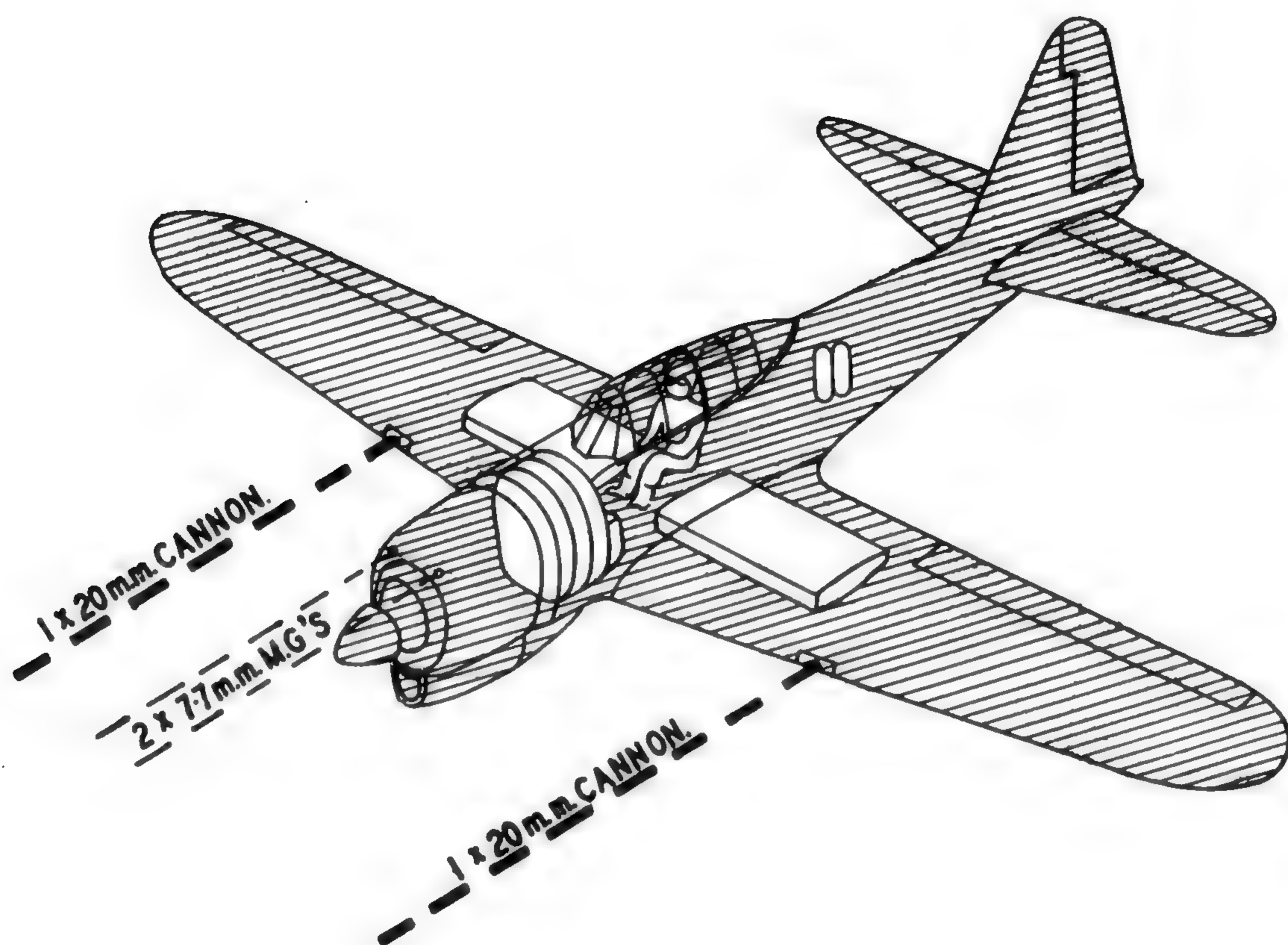
TYPE O MARK 1 ARMY AND NAVY SINGLE ENGINE FIGHTER

“ZEKE”



TYPE O MARK 1 ARMY AND NAVY SINGLE ENGINE FIGHTER

"ZEKE"



TYPE O MARK I AND NAVY SINGLE ENGINE FIGHTER

"ZEKE"

(Concluded)

Radio: Two-way radio (4596 KCS); radio compass (Fairchild).

Armor: Nil.

Armament: 2 x 7.7 mm. guns synchronized to fire through propeller, muzzle velocity 2,400 ft. per second.
2 x 20 mm. cannon mounted in wings, muzzle velocity 2,000 ft. per second. Electric reflector sight. Provision for two bomb racks on wings. Weight of guns and ammunition 344.5 lbs.

Ammunition: 500 rounds per 7.7 mm. gun.
60 rounds per 20 mm. cannon.

Vulnerability: Tanks are not self-sealing. Structural weakness apparent near end of cockpit enclosure. Wing in one piece riveted to fuselage. Oxygen equipment with altitude regulator carried.

Remarks: Performance is based on actual flight tests of a captured aircraft in a repaired condition. It is possible that the aircraft may be 5 to 6 miles per hour faster in undamaged service condition.

Tactical Data: 7.7 mm. machine guns can be fired at the same time, but 20 mm. cannon must be fired in conjunction with 7.7 mm. machine guns. Ailerons are abnormally large and the rate of roll at low speeds is extremely high. However the ailerons forces increase excessively with airspeed, and above 200 kts. indicated the airplane is very difficult to roll. At speeds above 250 kts. it is almost impossible to maneuver the airplane laterally. At moderate to high speeds the rate of roll to the right is definitely lower than to the left, due to relative control forces.

TYPE O MARK I ARMY AND NAVY SINGLE ENGINE FIGHTER

"ZEKE"

Originally Manufactured by: Mitsubishi

Also Manufactured by: Nakajima

Crew: One

Engine: One Nakajima "Sakae" 12, NK-1, 14 cylinder, twin-row, air cooled, radial engine.

Nominal Rating (U. S. Normal?),

830 h. p. at S. L.

950 h. p. at 13,750 ft.

Maximum Rating (U. S. Military?),

940 h. p. at S. L.

955 h. p. at 14,500 ft.

Single-speed, single-stage supercharger.

Dimensions: Wing Span 39' 5" Length 29' 6 1/8" Height 9' 2" Wing Area 248 square ft.

	Empty	Full Military Load	Extra Fuel
Weights:	3,718 lbs.	5,555 lbs.	6,136 lbs. (Belly Tank)

Maximum Speed: 280 m. p. h. at S. L. with normal load.
326 m. p. h. at 16,000 ft. with normal load.
307 m. p. h. at 16,000 ft. with belly tank.

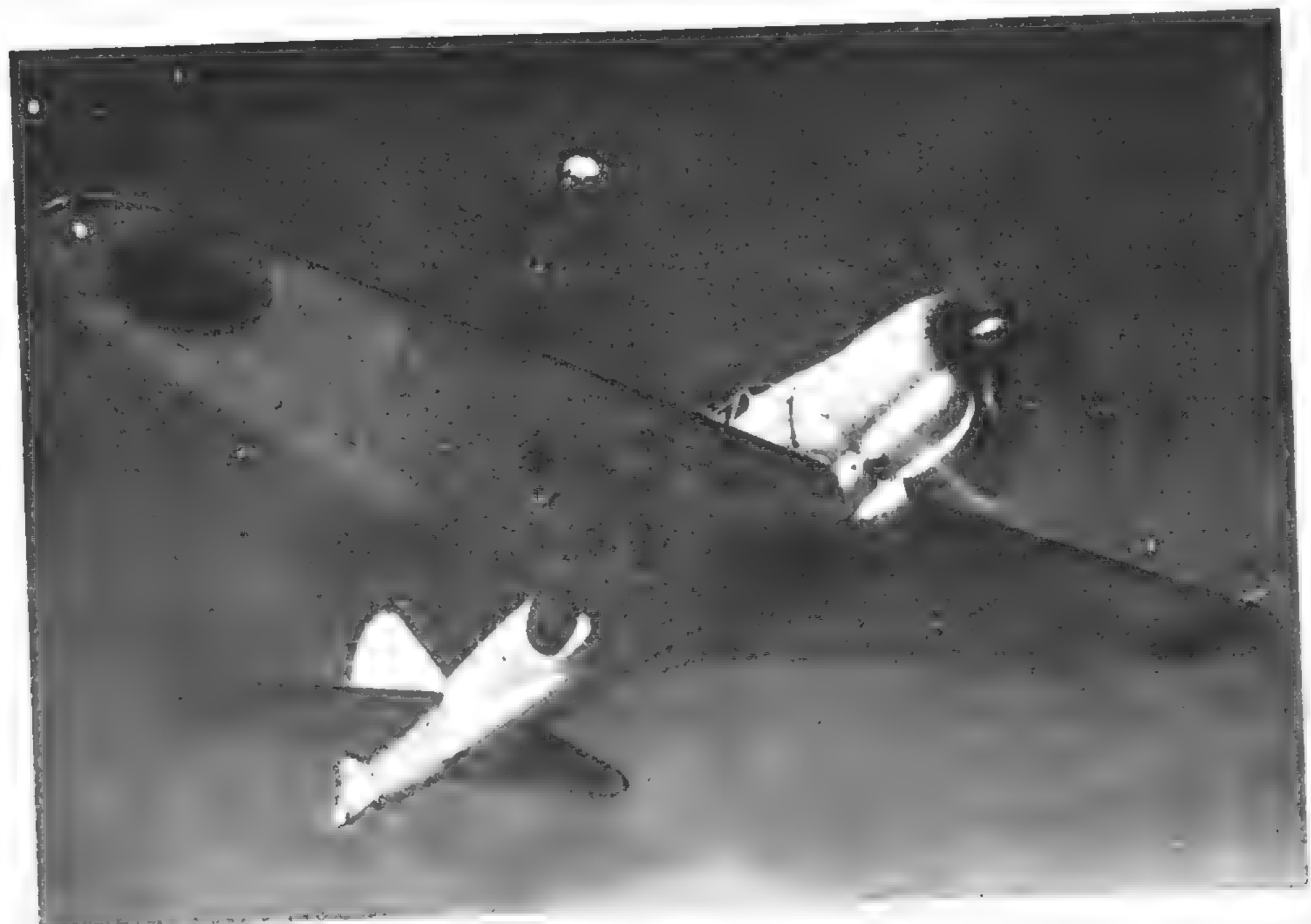
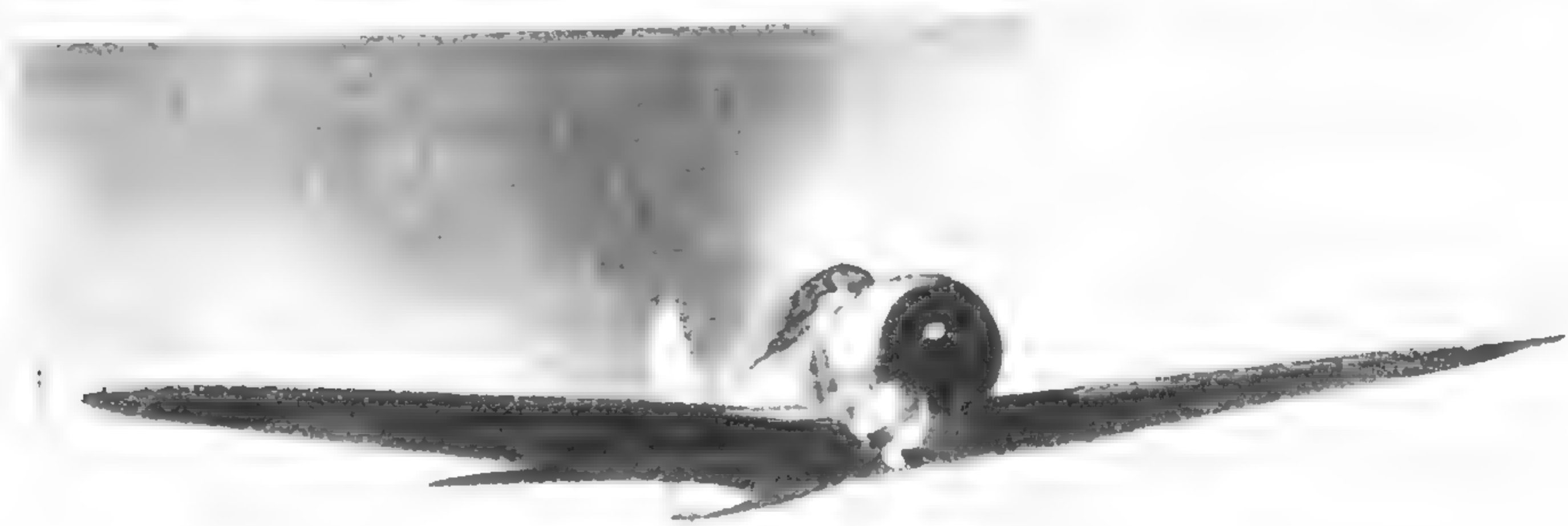
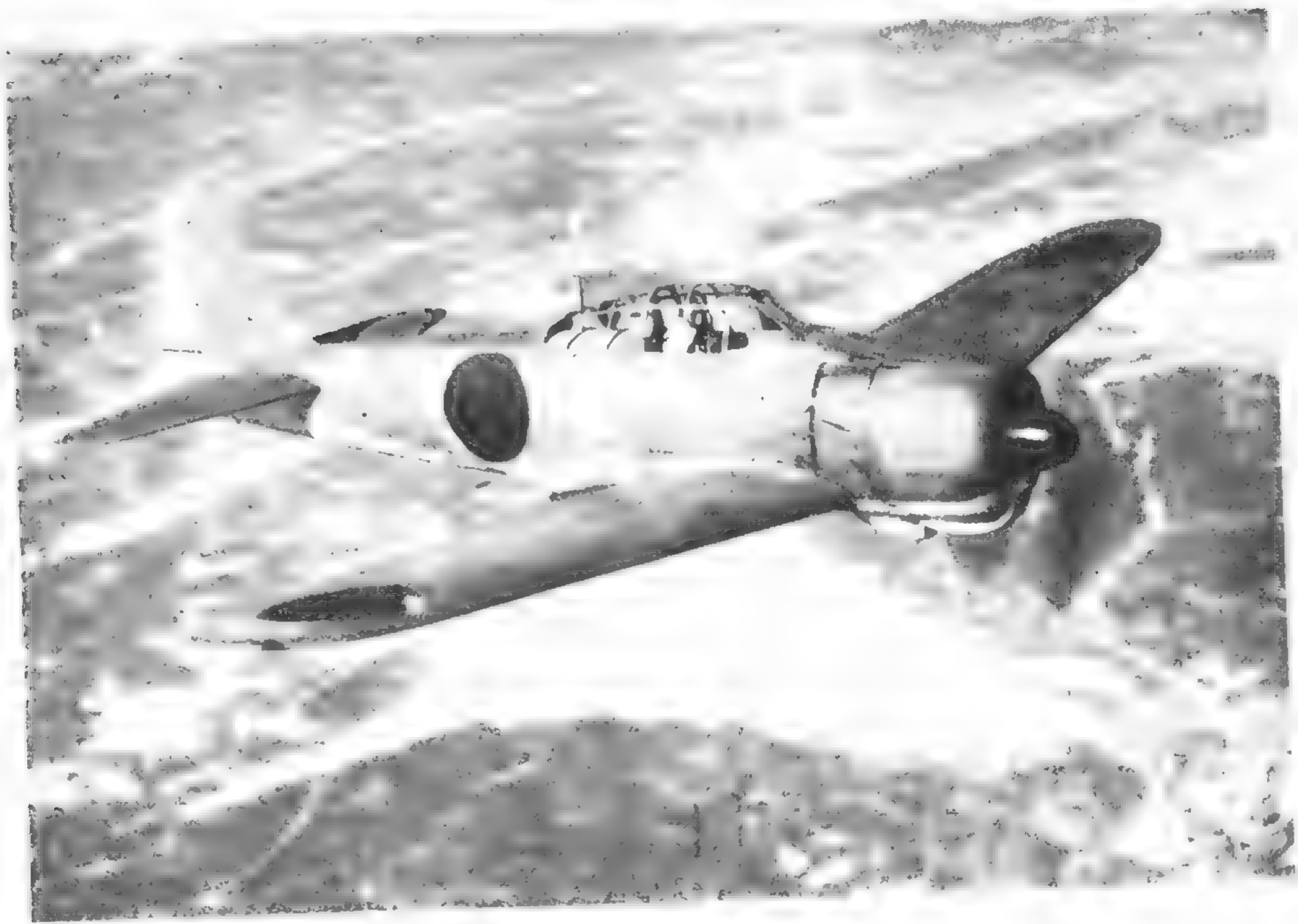
Rate of Climb: 2,750 ft. per minute at S. L. with normal load.
2,500 ft. per minute at 14,000 ft. with normal load.
2,235 ft. per minute at 14,000 ft. with belly tank.

Service Ceiling: 38,500 ft.

RANGE:

Condition	Speed		Altitude	Bomb	Fuel	Fuel
	Miles	m. p. h.			Imp. Gal.	U. S. Gal.
Normal Load, 85% Vm.	670	273	14,000'	Some-	115	141
Normal Load, Max. Range	1,290	170	14,000'	times	115	141
Extra Fuel, 85% Vm.	1,050	257	14,000'	carries	194	228
Extra Fuel, Max. Range	1,870	168	14,000'	small bombs	194	228

TYPE O MARK 1 ARMY AND NAVY SINGLE ENGINE FIGHTER
"ZEKE"

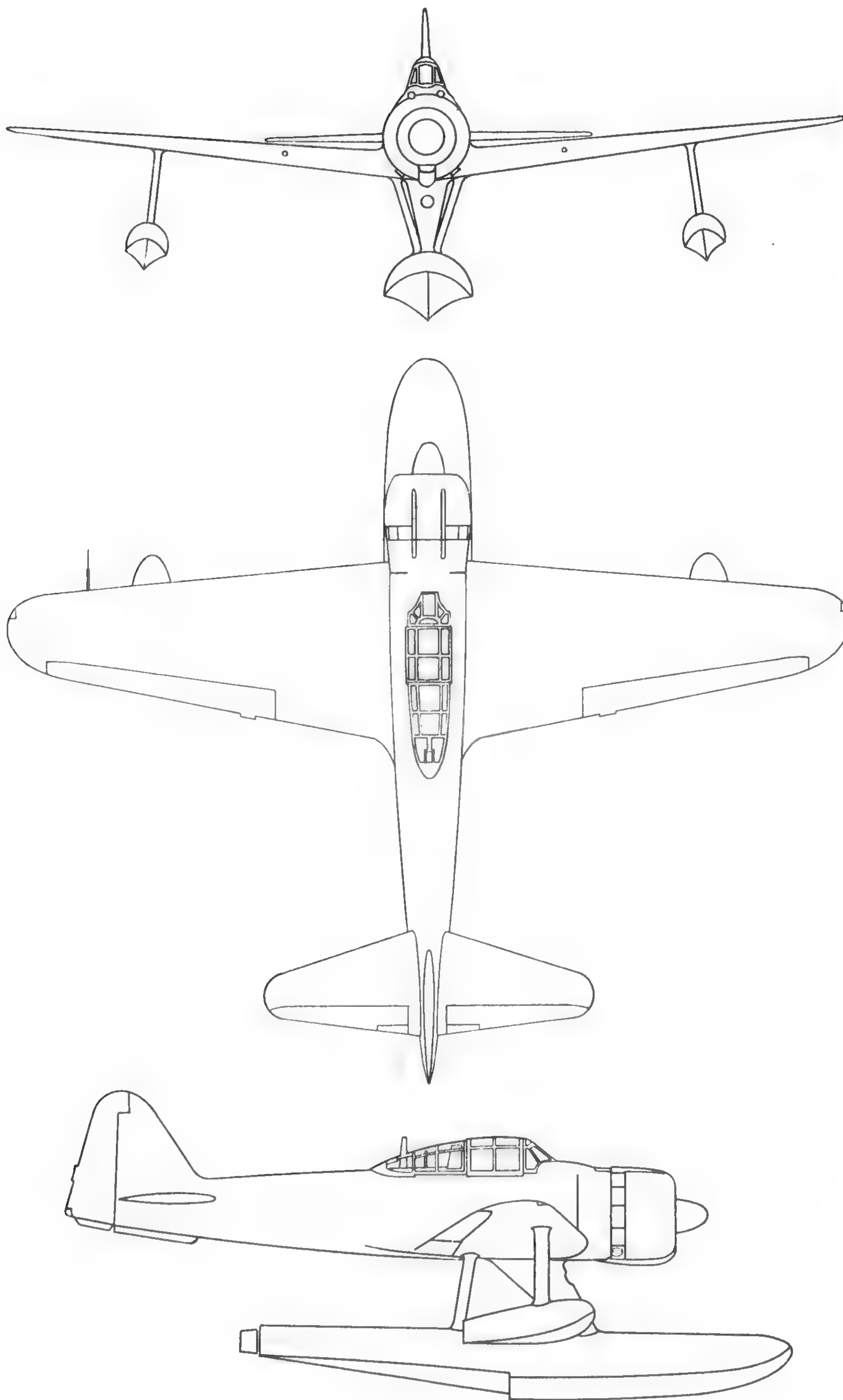


TYPE O MARK 1 ARMY AND NAVY SINGLE ENGINE FIGHTER

"ZEKE"



TYPE O MARK 1 NAVY SINGLE ENGINE SEAPLANE FIGHTER
"RUFÉ"



TYPE O MARK I NAVY SINGLE ENGINE SEAPLANE FIGHTER

"RUFÉ"

Originally Manufactured by: Mitsubishi

Also Manufactured by:

Crew: One

Engine: One Nakajima "Sakae" 12, NK-1, 14 cylinder, twin-row, air cooled, radial engine.

Nominal Rating (U. S. Normal ?),

830 h. p. at S. L.

950 h. p. at 13,750 ft.

Maximum Rating (U. S. Military ?),

940 h. p. at S. L.

955 h. p. at 14,500 ft.

Single-speed, single-stage supercharger.

Dimensions: Wing Span 39' 5" Length 33' 1 1/8" Height 14' 0"
Wing Area 248 square ft. Float Length 27' 0".

	Empty	Full Military Load	Extra Fuel (carried in main float)
Weights:	4,145 lbs.	5,920 lbs.	6,436 lbs.

Maximum Speed: 239 m. p. h. at S. L.
280 m. p. h. at 16,000 ft.

Rate of Climb: 2,500 ft. per minute at S. L.
2,380 ft. per minute at 14,500 ft.

Service Ceiling: 36,500 ft. (Normal load)

RANGE:

Condition	Miles	Speed m.p.h.	Altitude	Bomb	Fuel Imp. Gal.	Fuel U. S. Gal.
Normal Load, 85% Vm.	555	232	13,750'	Some-	113.5	139
Normal Load, Max. Range	895	146	13,750'	times	113.5	139
Extra Fuel, 85% Vm.	935	232	13,750'	carries	184	225
Extra Fuel, Max. Range	1,480	149	13,750'	small bombs	184	225

Change 4

TYPE O MARK I NAVY SINGLE ENGINE SEAPLANE FIGHTER

"RUFÉ"

(Concluded)

Radio: Two-way radio (4596 KCS); radio compass (Fairchild).

Armor: Nil

Armament: 2 x 7.7 mm guns synchronized to fire through propeller, muzzle velocity 2,400 ft. per second.

2 x 20 mm cannon mounted in wings, muzzle velocity 2,000 ft. per second. Electric reflector sight. Weight of guns and ammunition 344.5 lbs.

Ammunition: 500 rounds per 7.7 mm gun.
60 rounds per 20 mm cannon.

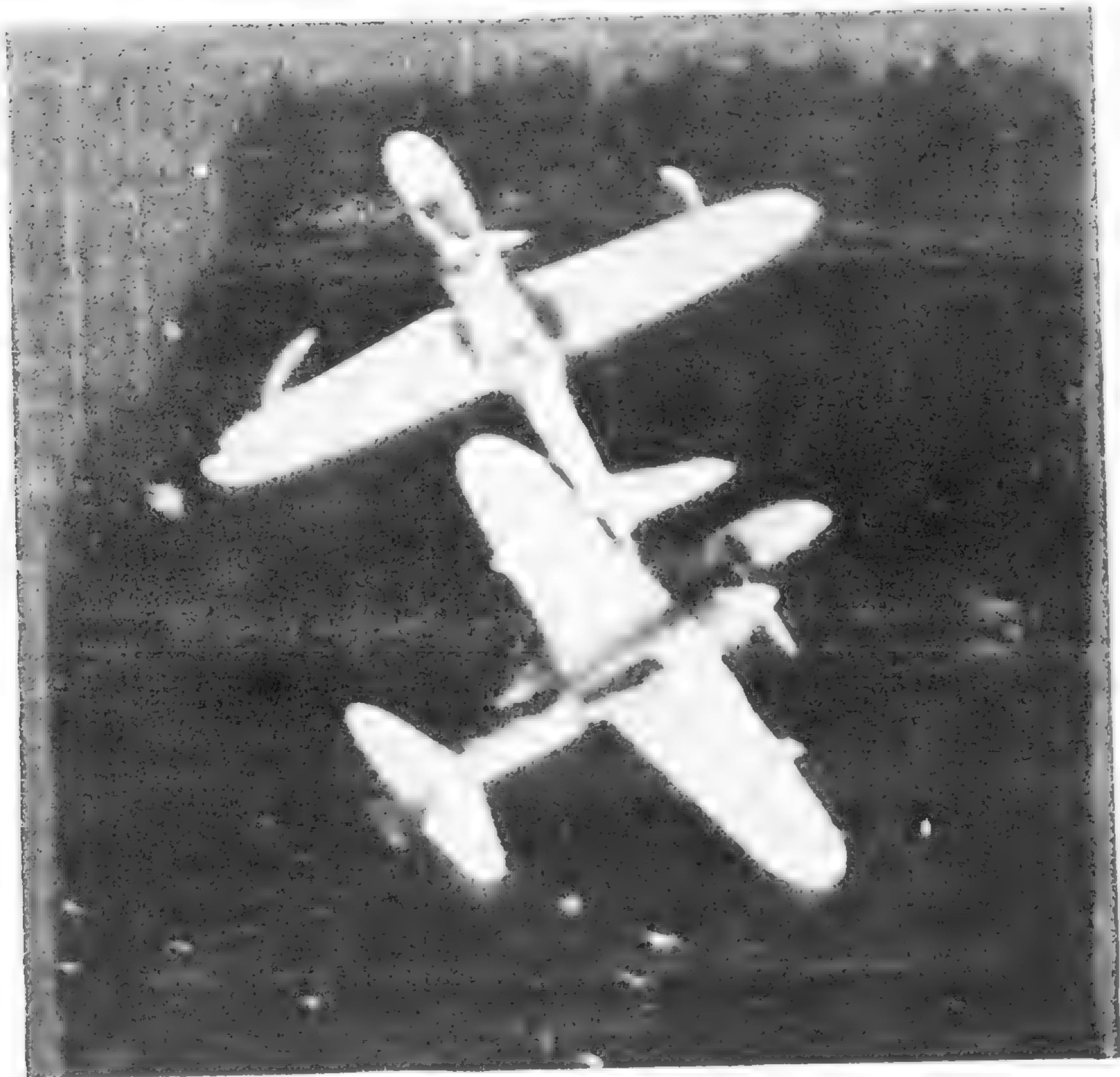
Vulnerability: Tanks are not self-sealing. There is an additional tank in the main float, located between forward and aft struts. Structural weakness apparent near end of cockpit enclosure. Wing in one piece riveted to fuselage. Oxygen equipment with altitude regulator carried.

Remarks.

Tactical Data: 7.7 mm machine guns can be fired at the same time, but 20 mm cannons must be fired in conjunction with 7.7 mm machine guns.

TYPE O MARK I NAVY SINGLE ENGINE SEAPLANE FIGHTER

"RUFÉ"

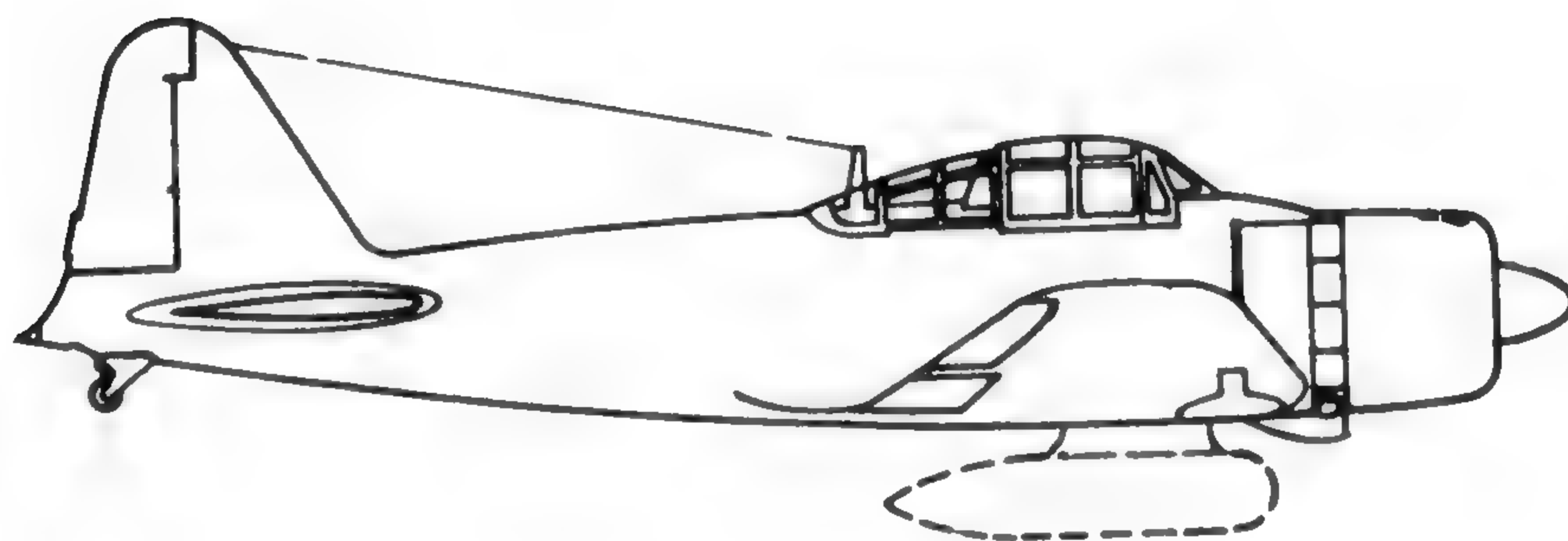
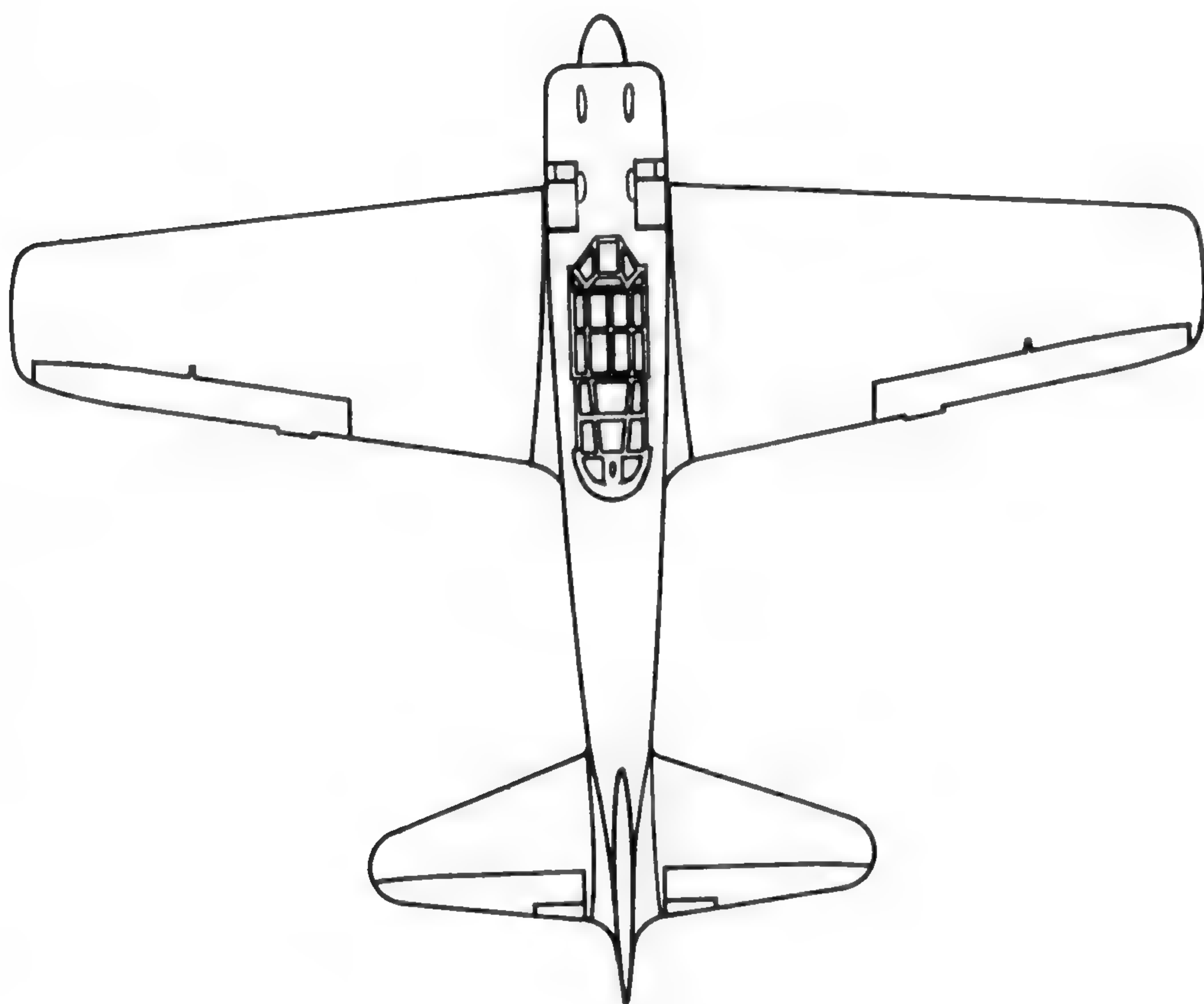
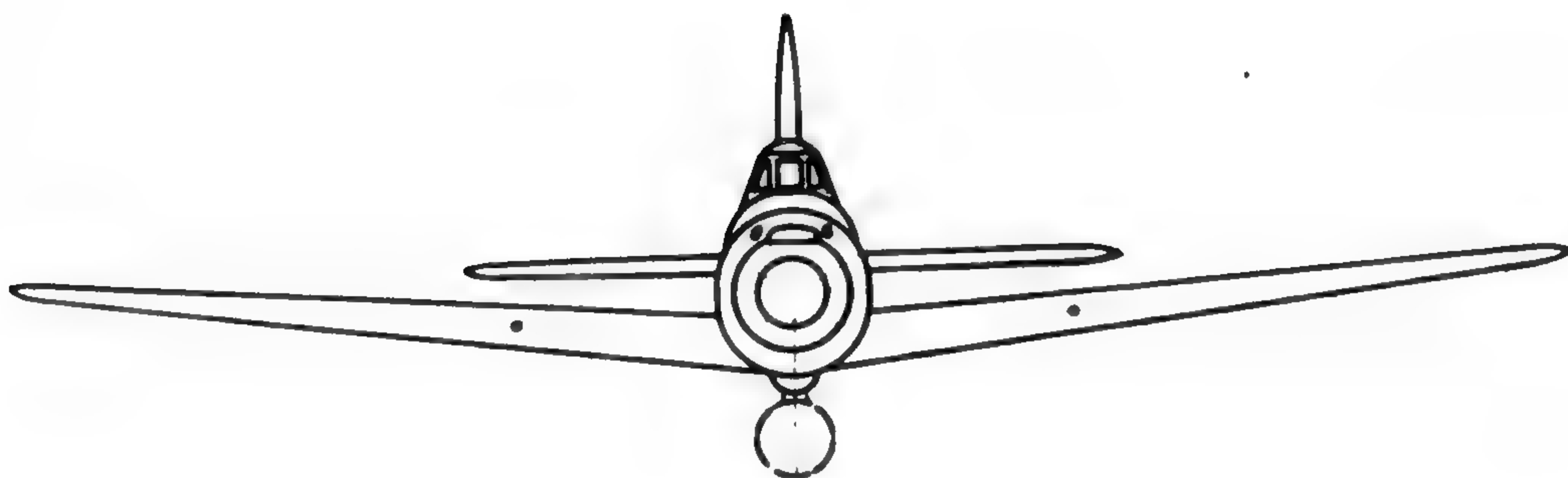


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Change 5

TYPE O MARK 2 ARMY AND NAVY SINGLE ENGINE FIGHTER

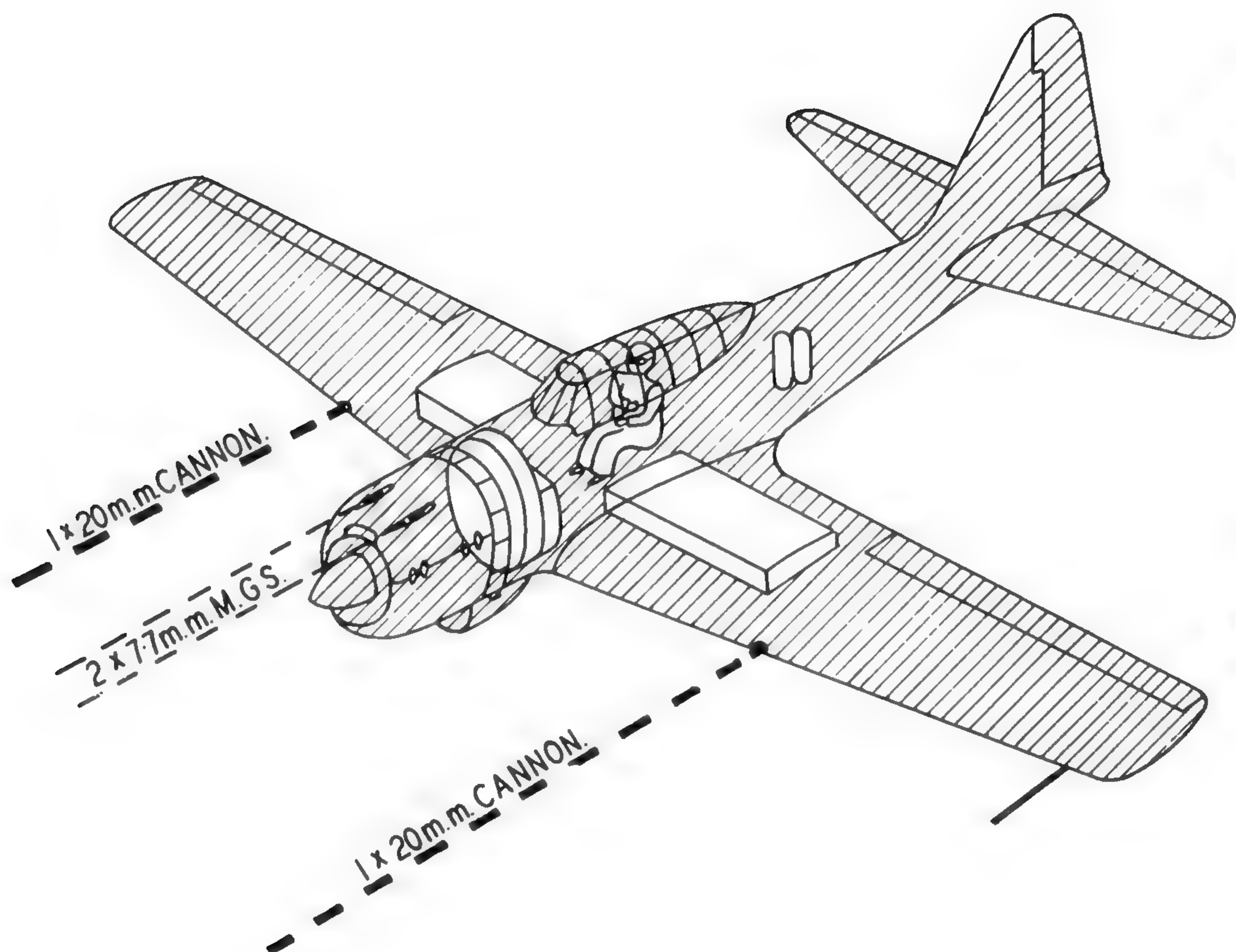
"HAP"



Change 4

TYPE O MARK 2 ARMY AND NAVY SINGLE ENGINE FIGHTER

"HAP"



TYPE O MARK 2 ARMY AND NAVY SINGLE ENGINE FIGHTER

"HAP"

Originally Manufactured by: Mitsubishi

Also Manufactured by: Nakajima

Crew: One

Engine: One Nakajima "Sakae" 21, 14 cylinder, twin-row, air-cooled, radial engine.

Nominal rating (U. S. Normal)

1,000 h. p., S. L. to 7,000 ft.

945 h. p., 8,500 to 17,800 ft.

Maximum rating (U. S. Military)

1,120 h. p., S. L. to 3,600 ft.

1,060 h. p., 5,300 to 15,000 ft.

Dimensions: Span 36' 6" Length 29' 8" Wing Area 238 sq. ft.

	Empty	Full Military Load	Extra Fuel
Weights:	3,913 lbs.	5,750 lbs.	6,331 lbs. (Belly Tank)

Maximum Speed: 304 m. p. h. at S. L., with normal load
350 m. p. h. at 17,000 ft., with normal load
328 m. p. h. at 17,000 ft., with belly tank.

Rate of Climb: 3,200 ft. per min. at S. L., with normal load.
2,730 ft. per min. at 15,000 ft. with normal load.
2,330 ft. per min. at 15,000 ft. with belly tank.

Service Ceiling: 40,200 ft.

RANGE:

Condition	Miles	Speed m. h. p.	Altitude feet	Fuel Imp. Gal.	Fuel U. S. Gal.
Normal load, 90% Vm.	480	281	7,000	115	141
Normal load, Max. Range	1,180	153	7,000	115	141
Extra fuel, 90% Vm.	730	262	7,000	194	228
Extra Fuel, Max. Range	1,680	146	7,000	194	228

Radio:

Armor: Nil.

Armament: 2 x 7.7 mm. machine guns, mounted in fuselage.
2 x 20 mm. cannons, mounted in wings.

Ammunition: 600 rounds for each 7.7 mm. machine gun.
60 rounds for each 20 mm. cannon.
One bomb rack of unknown capacity is carried under each wing.

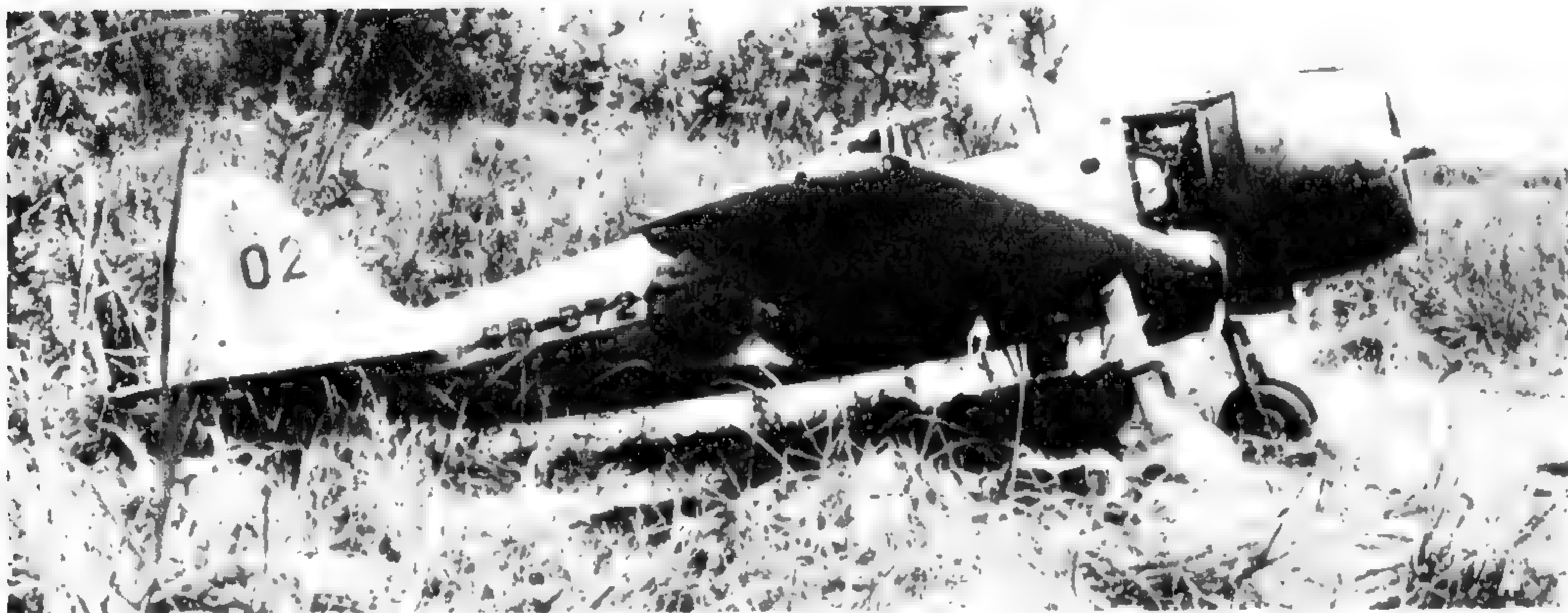
Vulnerability: No protection is provided for the fuel tanks or pilot.

Remarks: The speed and rate of climb figures are calculated by the Bureau of Aeronautics and are based on U. S. Military horsepower rating.

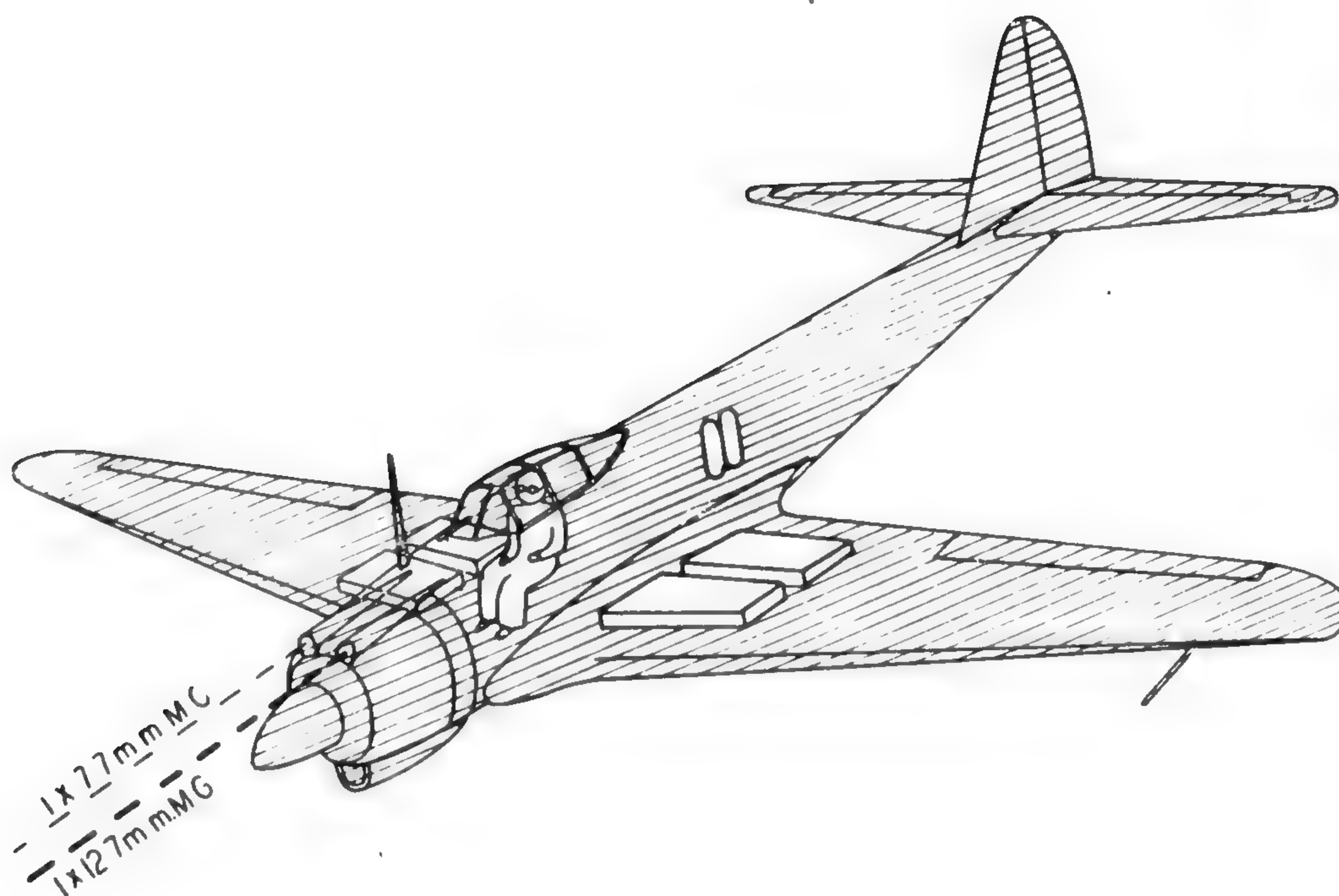
Tactical data:

TYPE O MARK 2 ARMY AND NAVY SINGLE ENGINE FIGHTER

"HAP"



TYPE 1 ARMY AND NAVY SINGLE ENGINE FIGHTER
"OSCAR"



TYPE 1 ARMY AND NAVY SINGLE ENGINE FIGHTER

"OSCAR"



TYPE 1 ARMY AND NAVY SINGLE ENGINE FIGHTER

"OSCAR"

Originally Manufactured by: Nakajima.

Also Manufactured by:

Crew: One.

Engine: One Nakajima, Sakae 12, 14 cylinder, twin row, aircooled, radial engine, with single-stage, single-speed supercharger.

Normal rating: 830 h. p. at sea level.

Maximum rating: 940 h. p. at sea level at take off.
955 h. p. at 14,500 ft.

Dimensions: Wing Span 37' 7" Length 28' 7" Height 9' (approx.)
Wing area 240.4 sq. ft.

	Empty	Normal	Extra Fuel
<i>Weights:</i>	3,970 lbs.	5,300 lbs.	6,150 lbs.

Maximum Speed: 274 m. p. h. at sea level, with normal load.
317 m. p. h. at 16,000 ft., with normal load.
294 m. p. h. at 16,000 ft., with extra fuel.

Rate of Climb: 2,920 ft. per min. at sea level with normal load.
2,690 ft. per min. at 14,500 ft. with normal load.
2,350 ft. per min. at sea level, with extra fuel.
2,050 ft. per min. at 14,500 ft. with extra fuel.

Service ceiling: 37,500 ft., with normal load.
34,700 ft., with extra load.

RANGE:

Condition	Miles	Speed M. P. H.	Altitude Feet	Fuel U. S. Gals.
Normal load, 90% Vm.	540	282	14,500	152
Normal load, Max. Range	1,240	168	14,500	152
Extra fuel, 90% Vm.	890	262	14,500	260
Extra fuel, Max. Range	1,918	163	14,500	260

Radio: Equipped with two-way radio transmission.

Armor: Nil

Armament: 1 x 12.7 mm. machine gun (on port side).
1 x 7.7 mm. fixed machine gun mounted in fuselage.

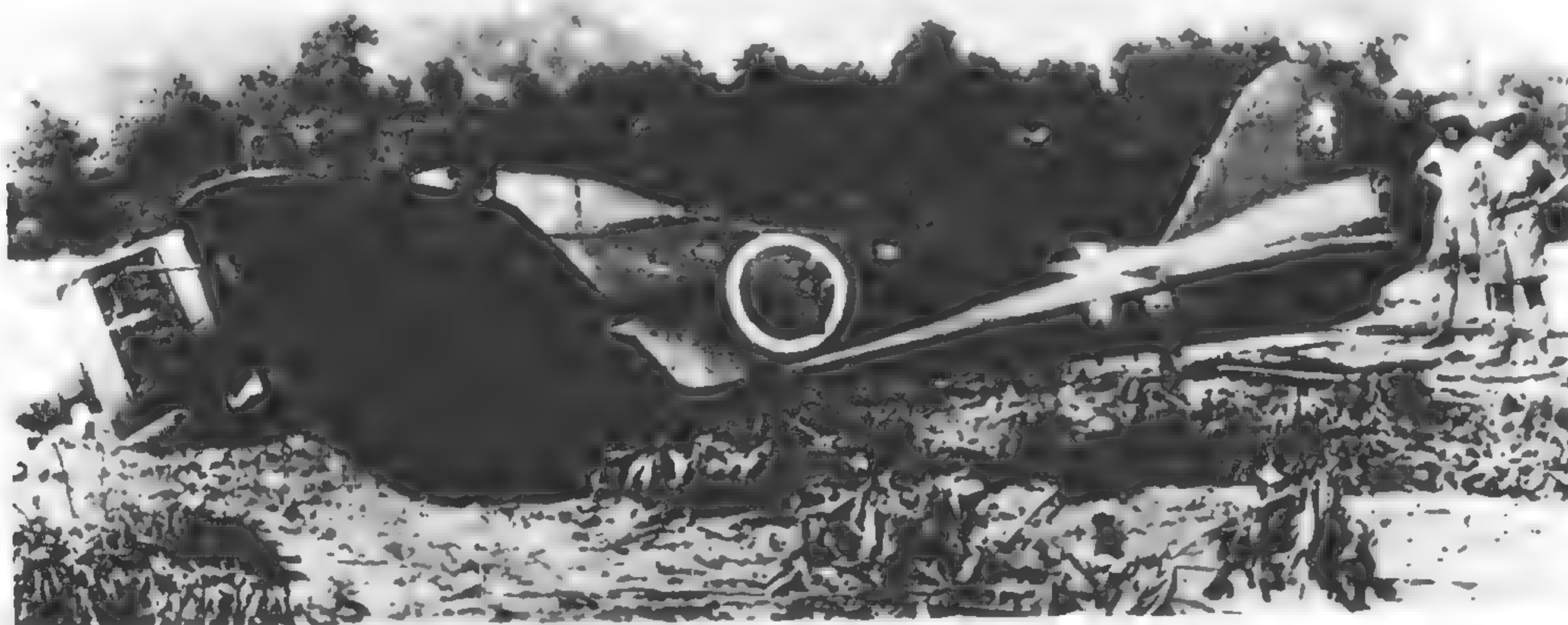
Ammunition: 250 rounds for the 12.7 mm. machine gun.
500 rounds for the 7.7 mm. machine gun.

Vulnerability: The built-in fuel tanks are reported to be equipped with a self-sealing covering which is somewhat inefficient. Extra fuel can be carried in jettisonable tanks. The oil cooler is a vulnerable point as it is a series of concentric tubing mounted in front of the reduction gear. No armor protection is used.

Remarks: Probably derived from Type 97, SSF, NATE.

Tactical Data: It has been reported that the framework of the forward part of the cockpit enclosure is about 2 or 3 inches in width which makes forward vision from this aircraft very poor.

TYPE 1 ARMY AND NAVY SINGLE ENGINE FIGHTER
"OSCAR"



MITSUBISHI TYPE 1 SINGLE ENGINE FIGHTER

"RAY"

Originally Manufactured by: Mitsubishi

Also Manufactured by:

Crew: One

Engines:

<i>Dimensions:</i>	Wing Span	Length	Height
	Empty	Normal	Full Military Load

Weights:

Maximum Speed: 375 miles per hour (manufacturers' guarantee).

Rate of Climb:

Service Ceiling:

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max Bombs</i>			550		
<i>Normal</i>					
<i>Max. Fuel</i>	1,250				

Radio:

Armour:

Armament: 2 x 7.7mm. M.Gs synchronized through propellor.
2 x 20mm. cannon, forward wings.

Ammunition:

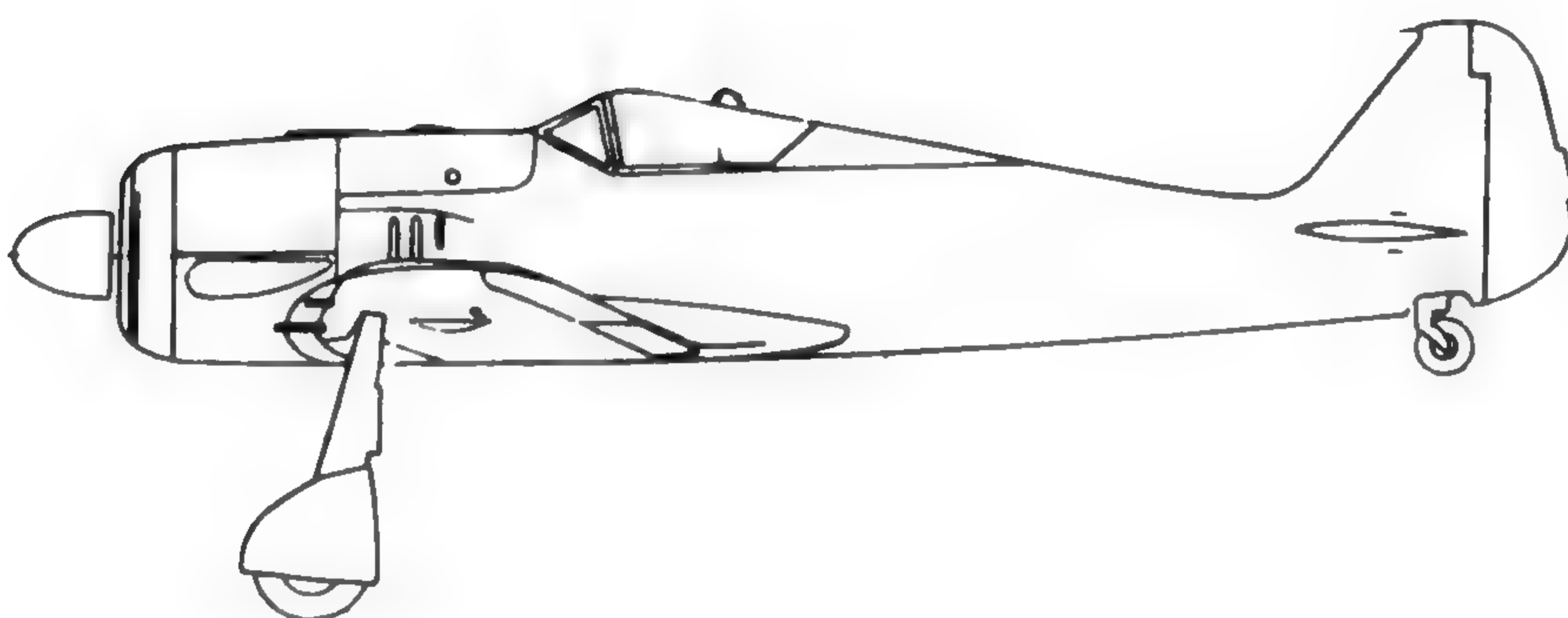
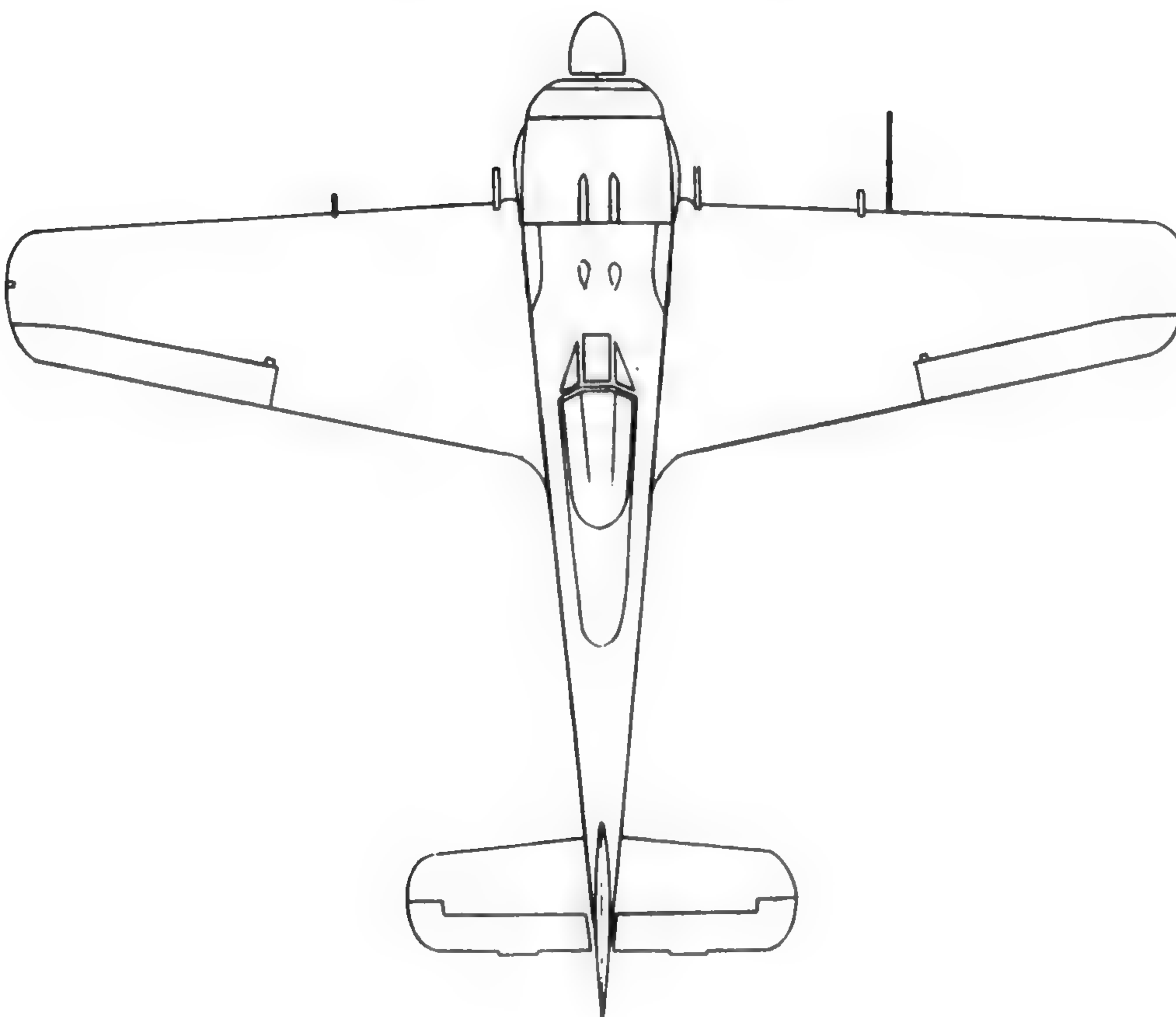
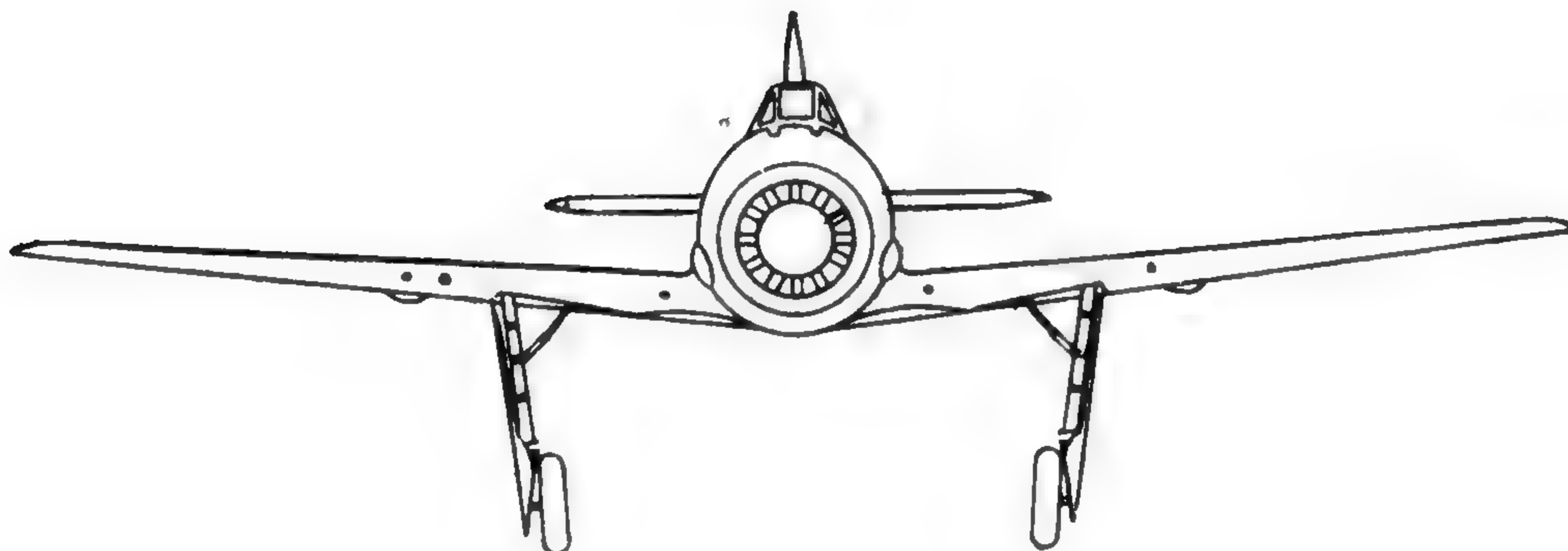
Vulnerability:

Remarks:

Tactical Data:

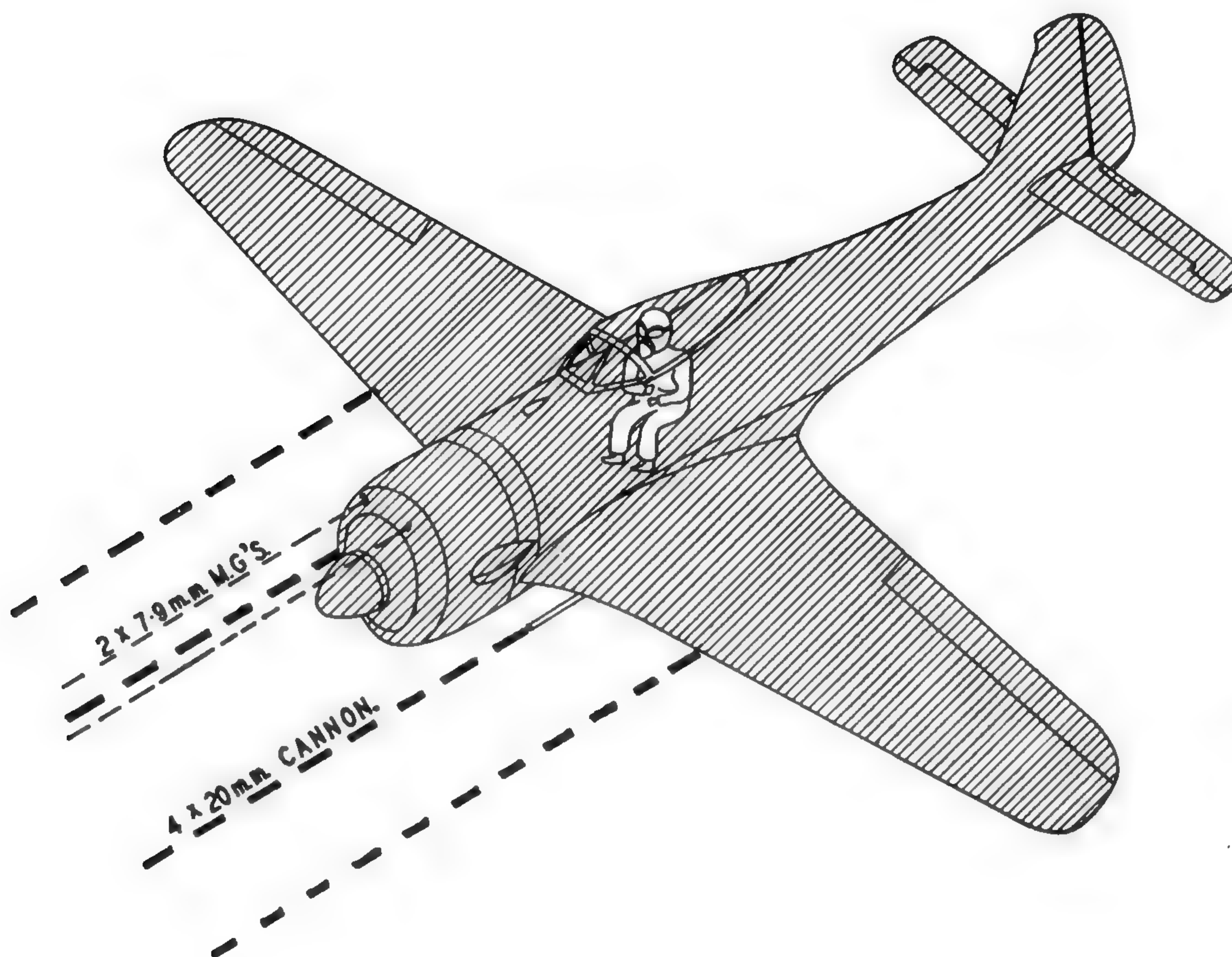
TYPE FOCKE-WULF 190 SINGLE ENGINE FIGHTER

"FRED"



TYPE FOCKE-WULF 190 SINGLE ENGINE FIGHTER

"FRED"



FOCKE-WULF 190 SINGLE ENGINE FIGHTER

"FRED"

Originally Manufactured by: Focke Wulf

Also Manufactured by:

Crew: One

Engine: One 14 cylinder, twin-row radial, BMW 801D, air-cooled. Rated at 1750 horsepower at 18,000 ft.

Dimensions: Wing Span 34.5' Length 30.0' Height

	Empty	Full Military Load	Extra Fuel
Weights:	6,240	8,580 lbs.	

Maximum Speed: 392 miles per hour at 17,300 ft.
(Maximum emergency)

Rate of Climb: 3,050 ft. per minute to 4,000 ft.
3,750 ft. per minute from 10,000 ft. to 17,000 ft.

Service Ceiling: 36,500 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U. S. Gal.
Normal	375	335		115	138
Max. Economy	535	216 at 16,000 Ft.		115	138

Radio:

Armour: Back of Pilot's seat—8 mm.

Between seat and fuselage—6 mm.

Behind Pilot's head and shoulders—13 mm.

Bullet-proof windscreen.

Armament: 2 x 7.9 mm. machine-guns top of engine cowling (firing through airscrew)

2 x 20 mm. cannon in wing roots about 12" from fuselage firing through airscrew (one in each wing root).

2 x 20 mm. cannon, one in each wing outside airscrew arc.

Ammunition:

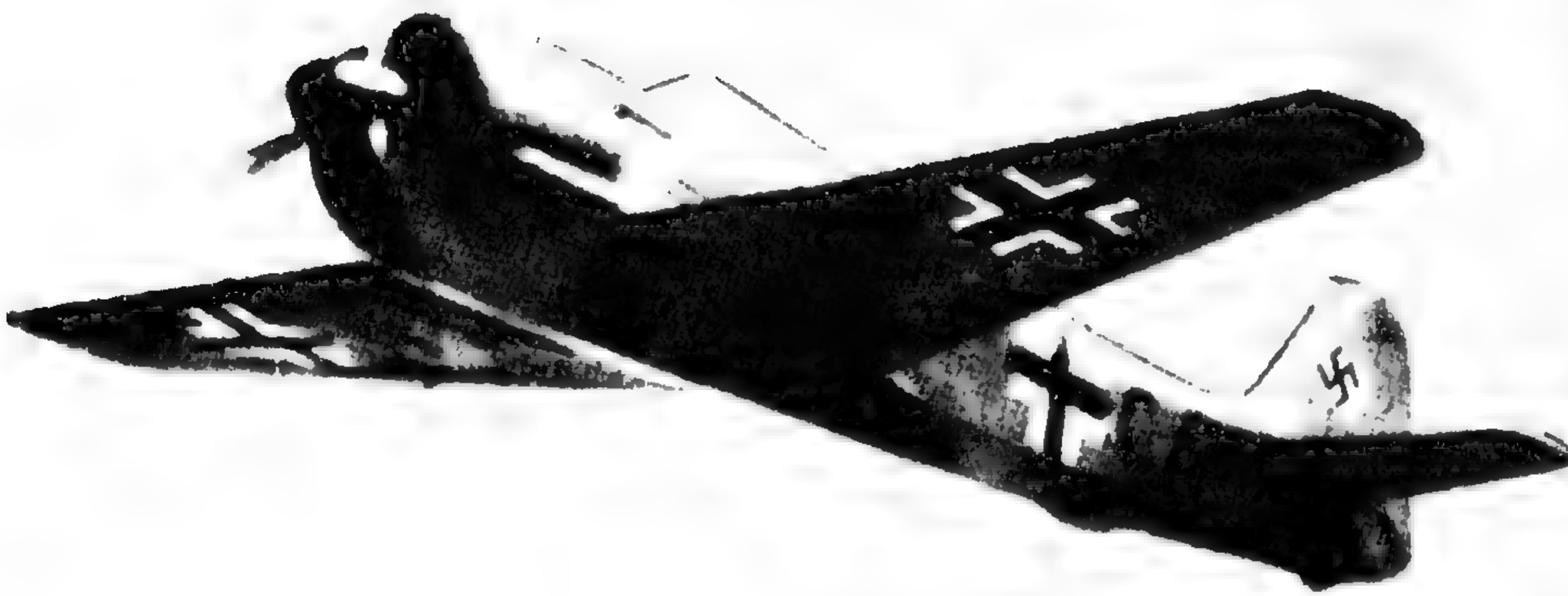
Vulnerability: Fuel tanks located in fuselage immediately below Pilot.
Tanks are self-sealing.

Remarks: A demolition charge of about 3 lbs. is usually carried underneath the pilot's seat. The cockpit enclosure is fastened to the fuselage by explosive rivets which may be detonated for an emergency release.

Tactical Data:

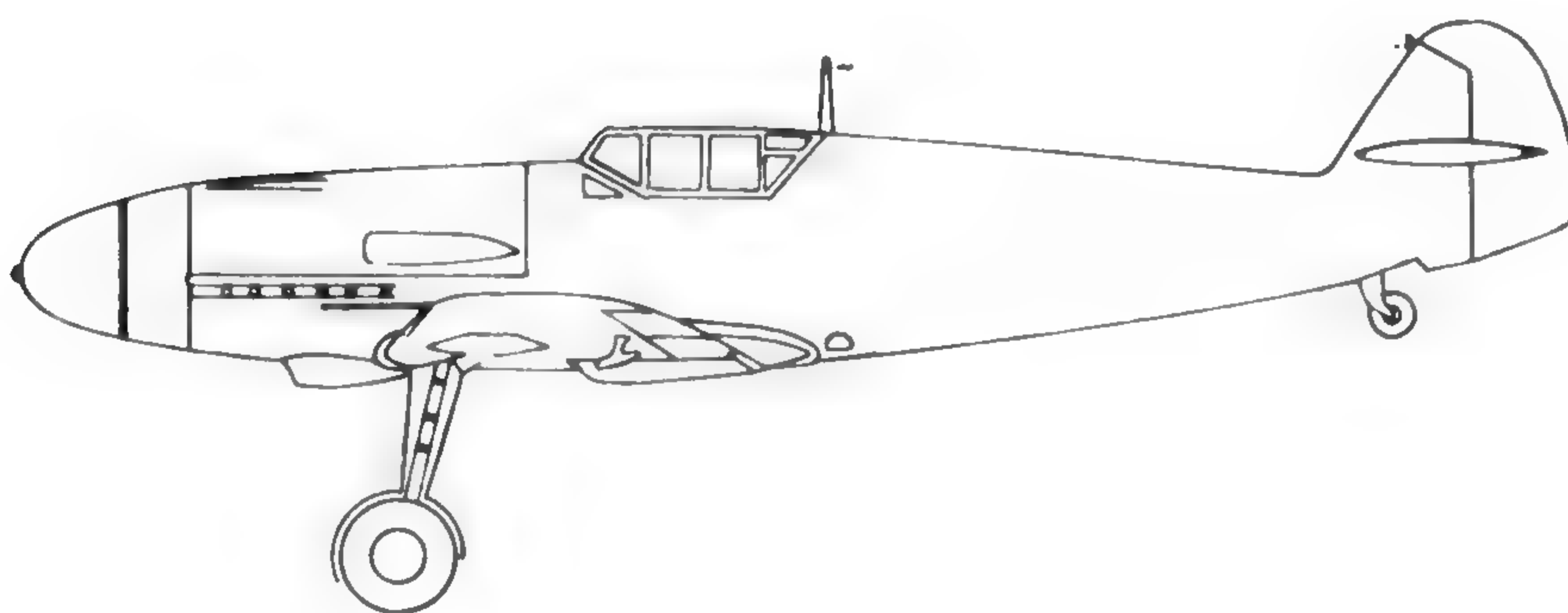
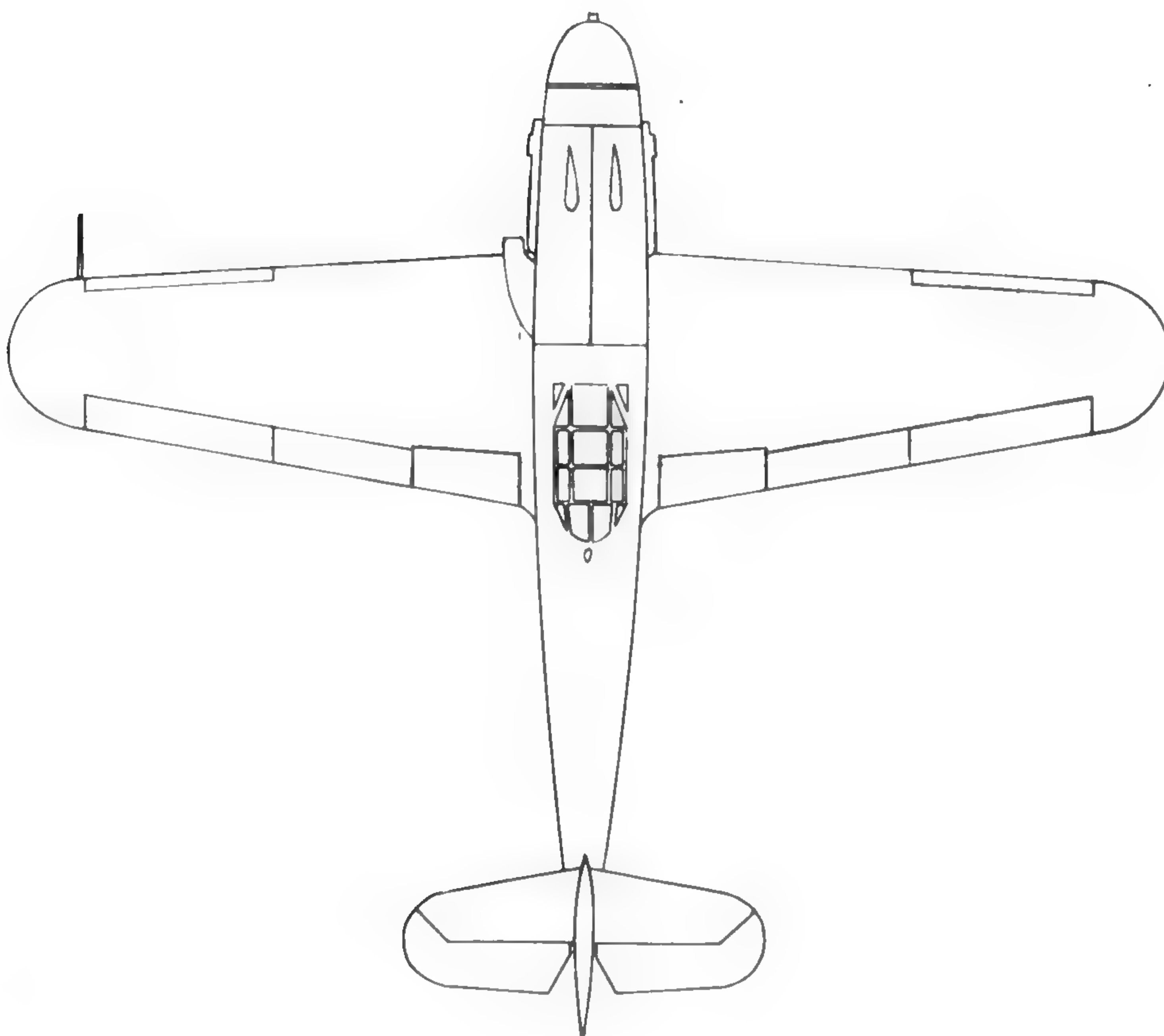
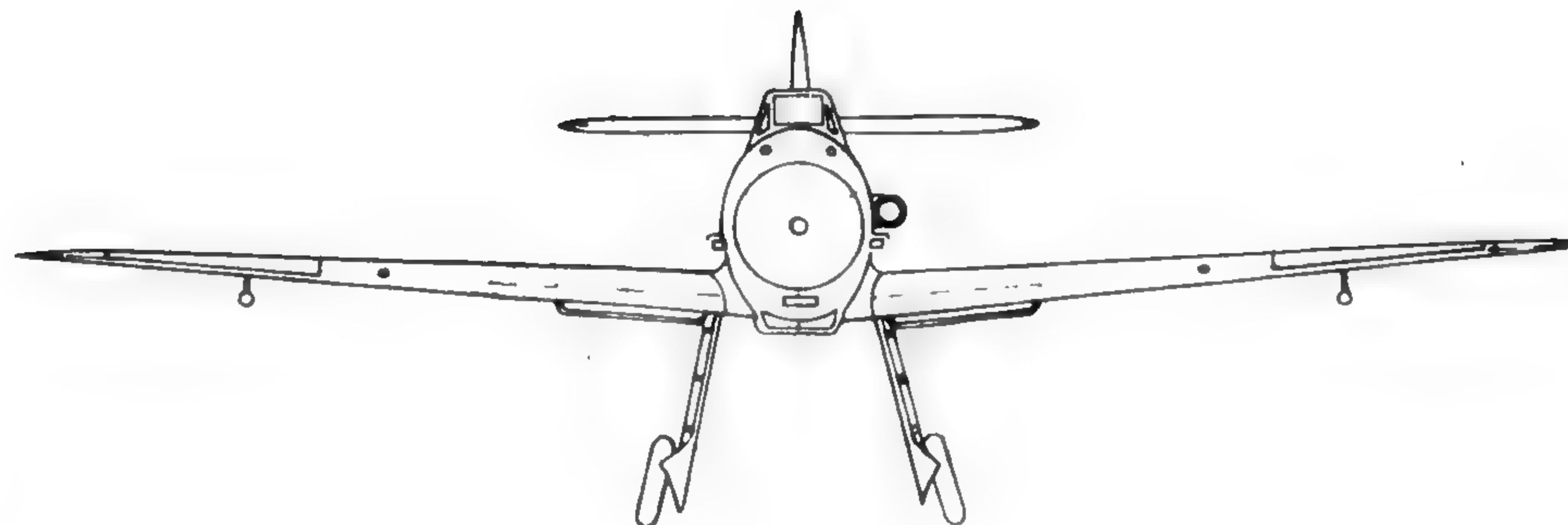
FOCKE-WULF 190 SINGLE ENGINE FIGHTER

"FRED"



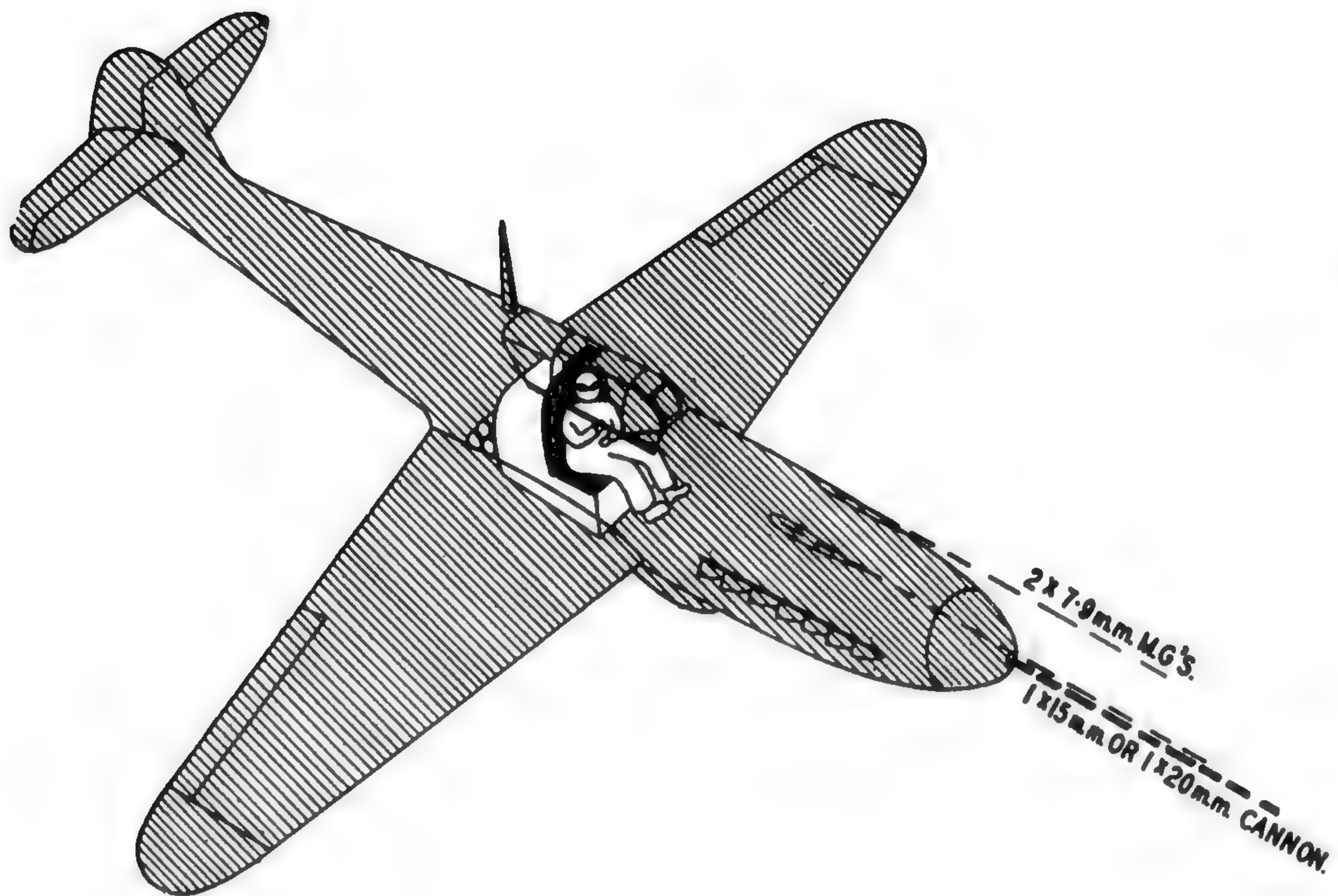
TYPE MESSERSCHMITT 109F SINGLE ENGINE FIGHTER

“MIKE”



TYPE MESSERSCHMITT 109F SINGLE ENGINE FIGHTER

"MIKE"



MESSERSCHMITT 109F SINGLE ENGINE FIGHTER

“MIKE”

Originally Manufactured by: Messerschmitt

Also Manufactured by:

Crew: One

Engine: One DB 601 N, 12-cylinder inverted “ V ” liquid-cooled;
1,150 h.p. at 18,000 ft.

Dimensions: Wing Span 32’ 8” Length 29’ 8” Height 8’ 6”

	Empty	Normal	Full Military Load
<i>Weights:</i>			

Maximum Speed: 370 miles per hour at 20,000 ft.

Rate of Climb: 3,200 ft. per minute.

Service Ceiling: 38,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Normal</i>	440	315	May carry one	85	102
<i>Max. Fuel</i>	795	300	550 lb. Bomb underneath	151	182
<i>Max. Fuel</i>	1,075	200	Fuselage	151	182

Radio: Two-way W/T, motor generator, one channel R/T.

Armour: Pilot’s Seat {Head plate—10 mm.
Back plate— 8 mm.
Seat Plate— 4 mm.} Total weight—75 lbs.

Armament: 1 x 15mm. or 1 x 20mm. cannon firing through airscrew hub.

2 x 7.9mm. machine-guns firing through airscrew.

Ammunition: 200 rounds for 15 or 20mm. cannon.

500 rounds for 7.9mm. machine-guns, each.

Vulnerability:

Remarks: Japanese will probably strip aircraft of all armour and reduce weight in simplifying construction.

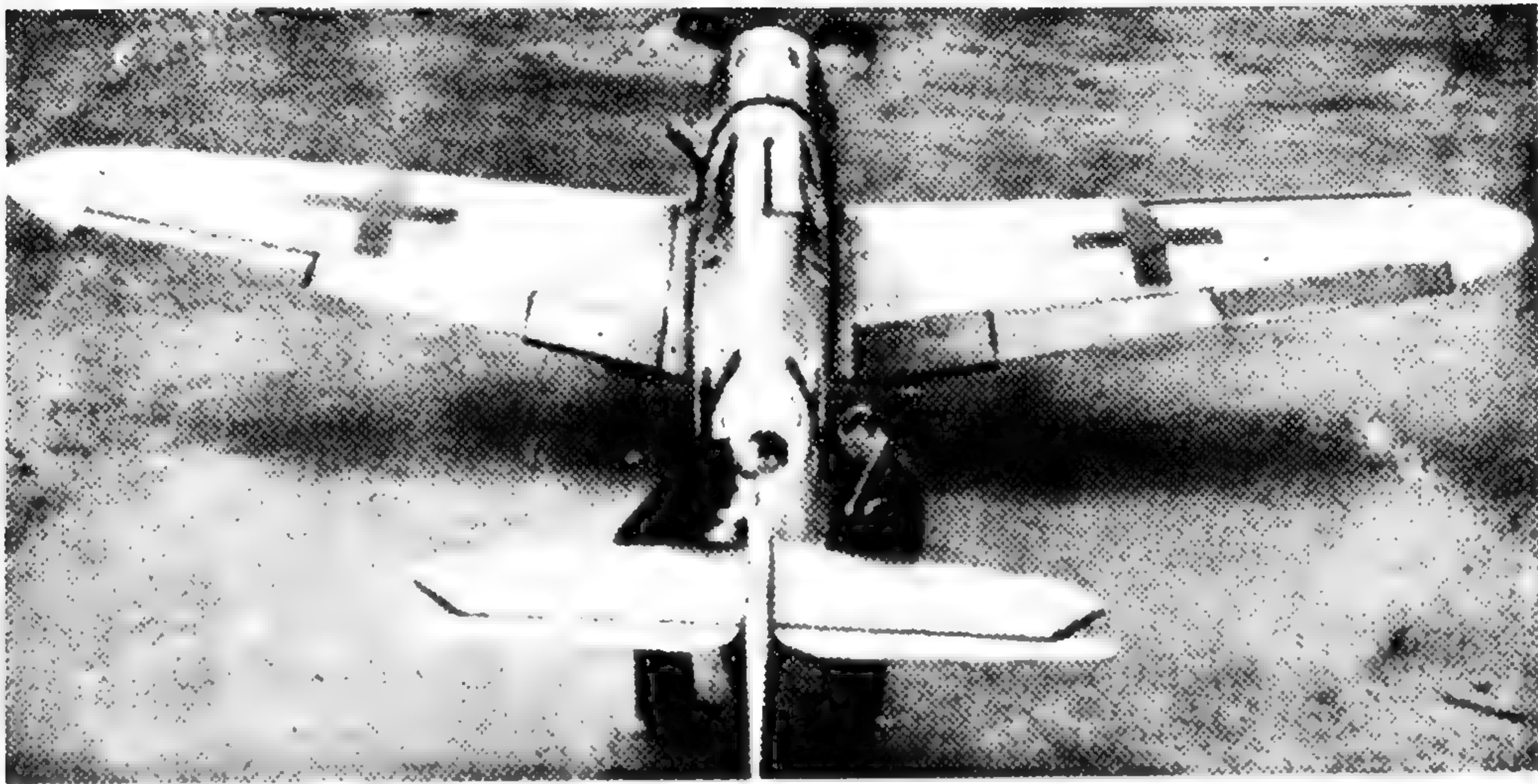
If used as a bomber, the maximum speed is 340 miles per hour, and range is reduced to 420 miles at 300 miles per hour.

It is reported that the fitting of an air cleaner on the F-4 type for tropical use reduces the maximum speed to 354 miles per hour at 23,000 ft.

Tactical Data:

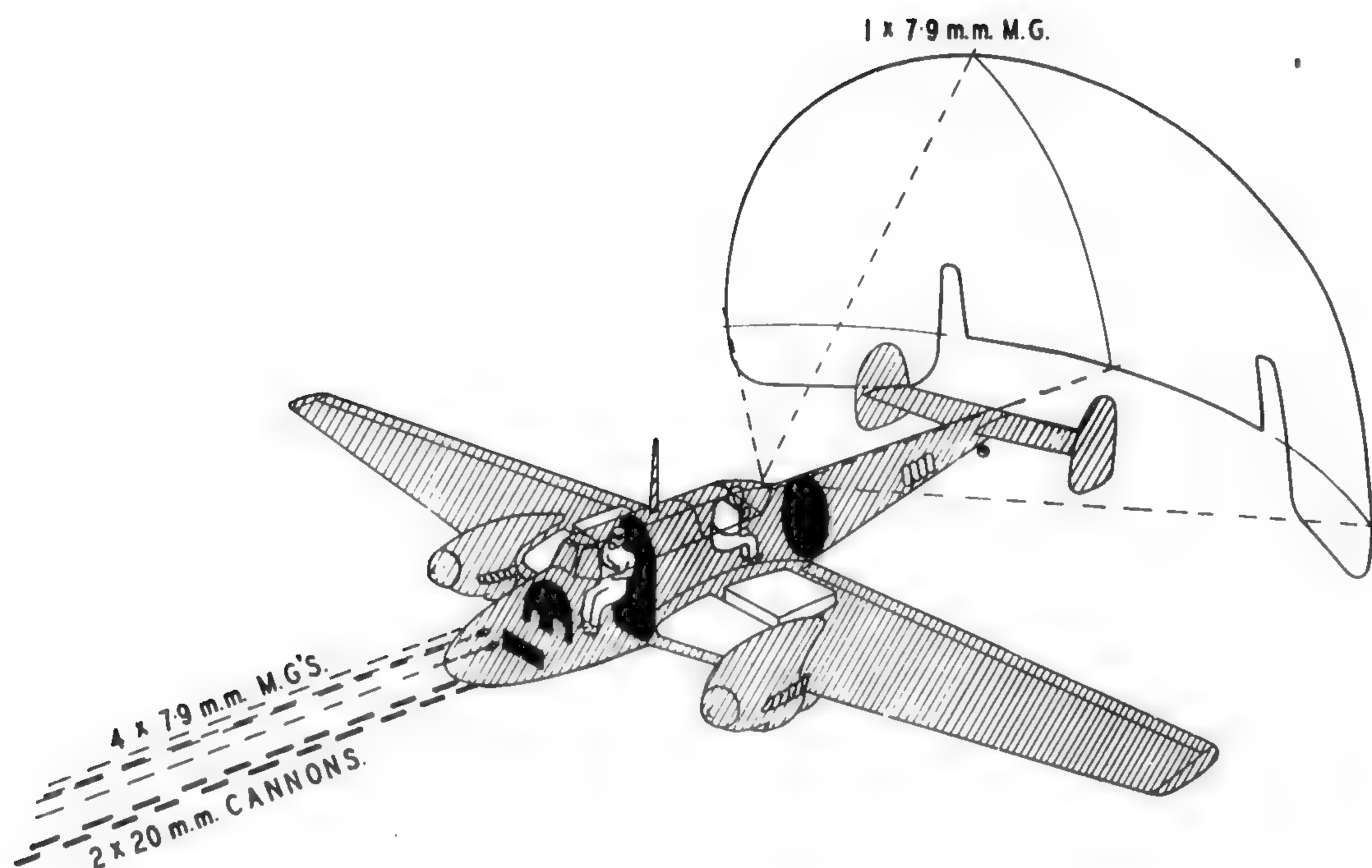
MESSERSCHMITT 109F SINGLE ENGINE FIGHTER

“MIKE”

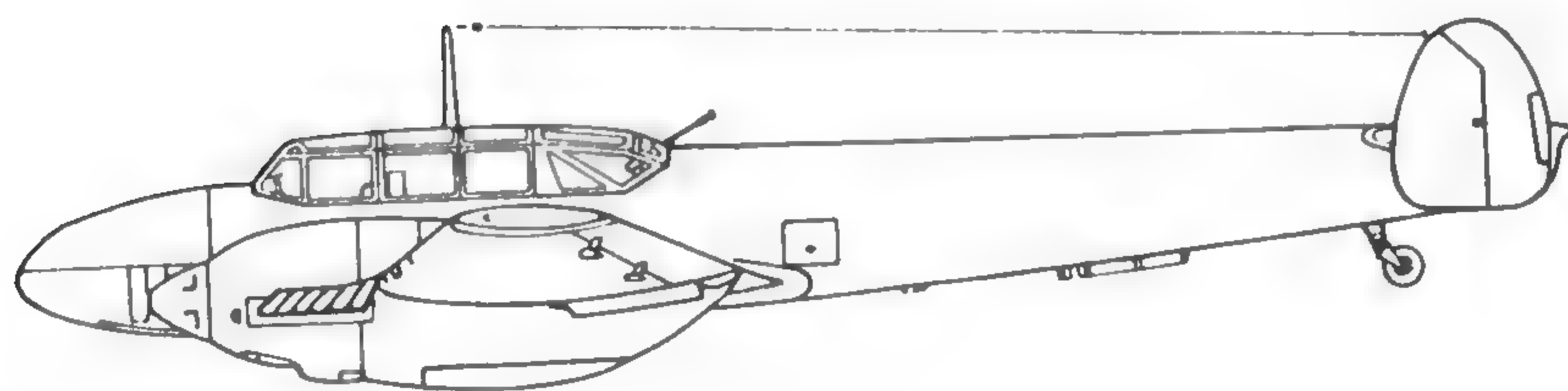
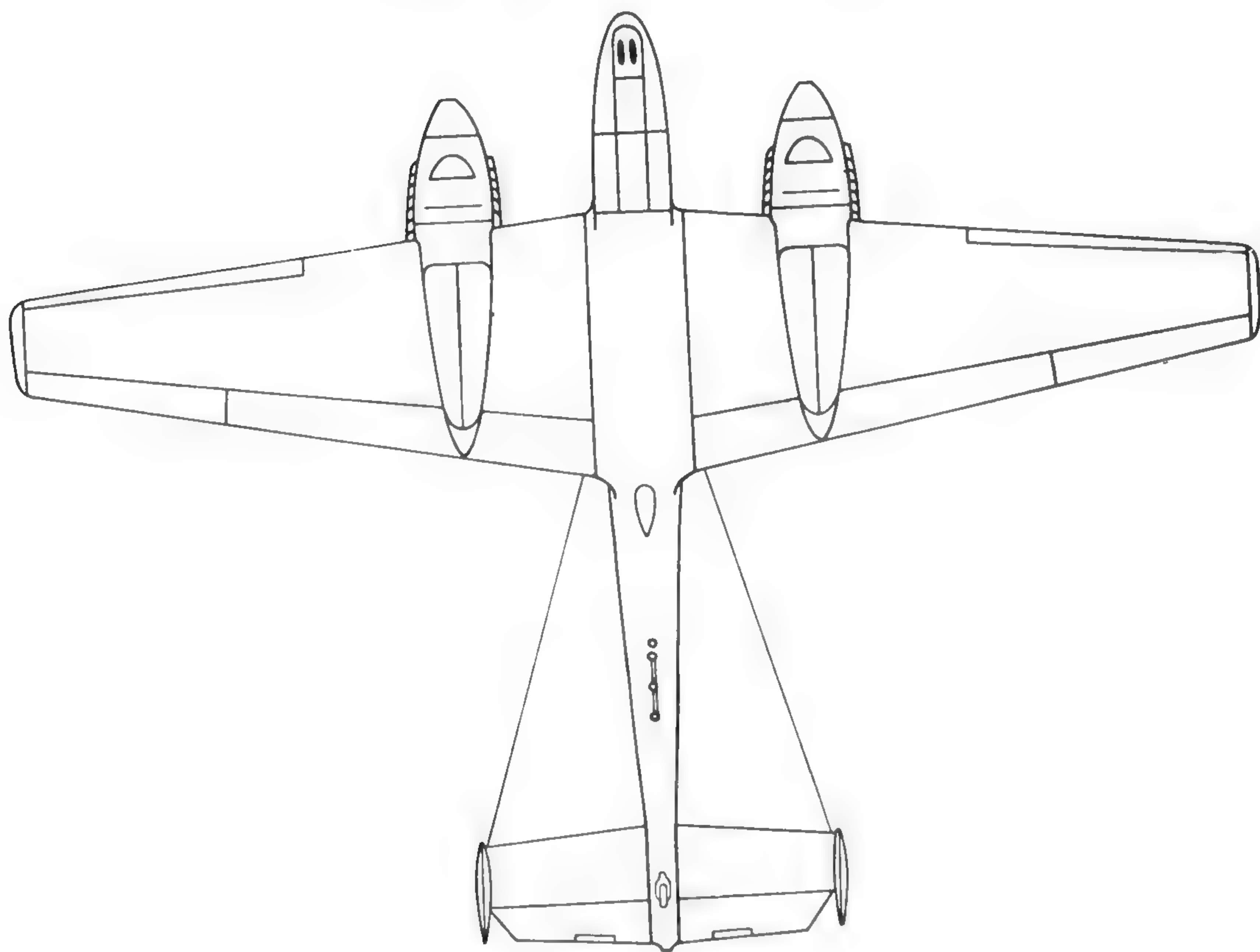
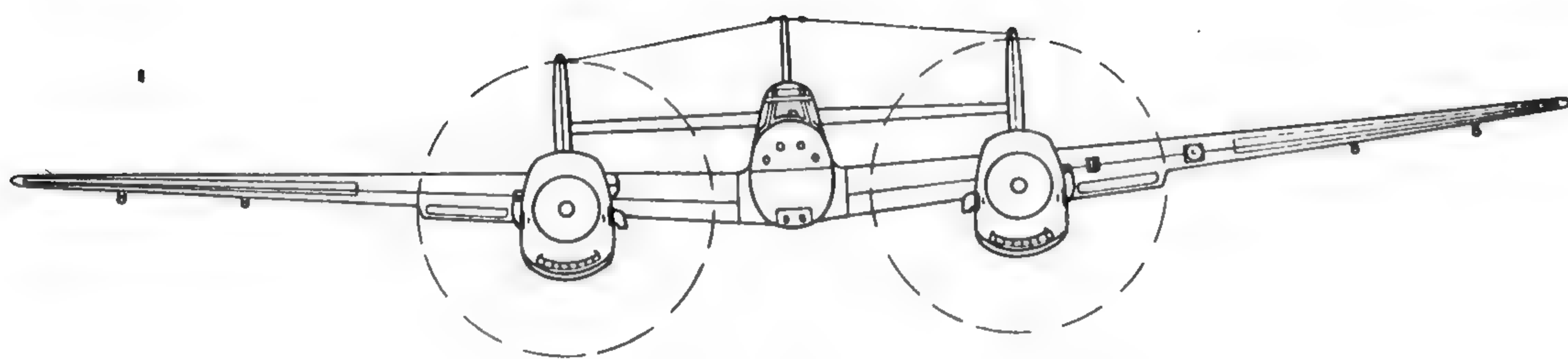


MESSERSCHMITT 110 TWIN ENGINE FIGHTER

"DOC"



MESSERSCHMITT 110 TWIN ENGINE FIGHTER
"DOC"



MESSERSCHMITT 110 TWIN ENGINE FIGHTER

“DOC”

Originally Manufactured by: Messerschmitt

Also Manufactured by:

Crew: Two or three

Engines: Two DB601A, 12-cylinder inverted “V,” liquid-cooled, 1,120 h.p. at 12,000 ft.

Dimensions: Wing Span 53’ 11” Length 40’ 4” Height 11’ 6”

	Empty	Normal	Full Military Load
<i>Weights:</i>		15,300	20,500

Maximum Speed: 340 to 350 miles per hour at 22,000 ft.

Rate of Climb: 16,500 ft. in 8.5 minutes.

Service Ceiling: Normal weight, start 32,000 ft., finish 34,000 ft.
Maximum weight, start 23,000 ft., finish 34,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>	2,120	200	615 lbs.	740	
<i>Normal</i>	740	283	Nil	280	
<i>Max. Fuel</i>	2,190	200	415 lbs.	762	

Radio. W/T and R/T, D/F, Blind approach and telephonic inter-communication between crew.

Armours Frontal—2 plates, 9 and 10mm.; Windscreen—occasionally glass 2½”; Pilot’s seat—4 and 8.5mm.; Bulkhead—sometimes fitted behind cockpit, 8mm.

Armament: 4 x 7.9mm. M.Gs. and
2 x 20 mm. cannon, forward fuselage
1 x 7.7mm. M.G., dorsal

Ammunition:

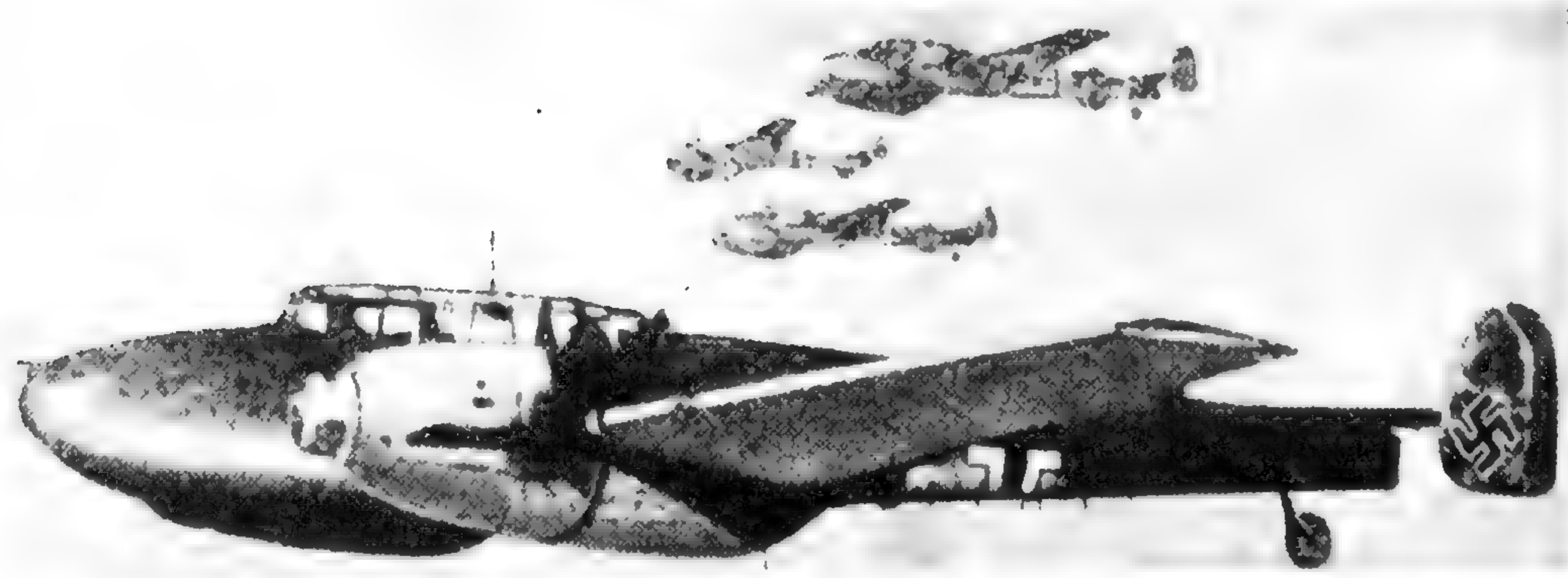
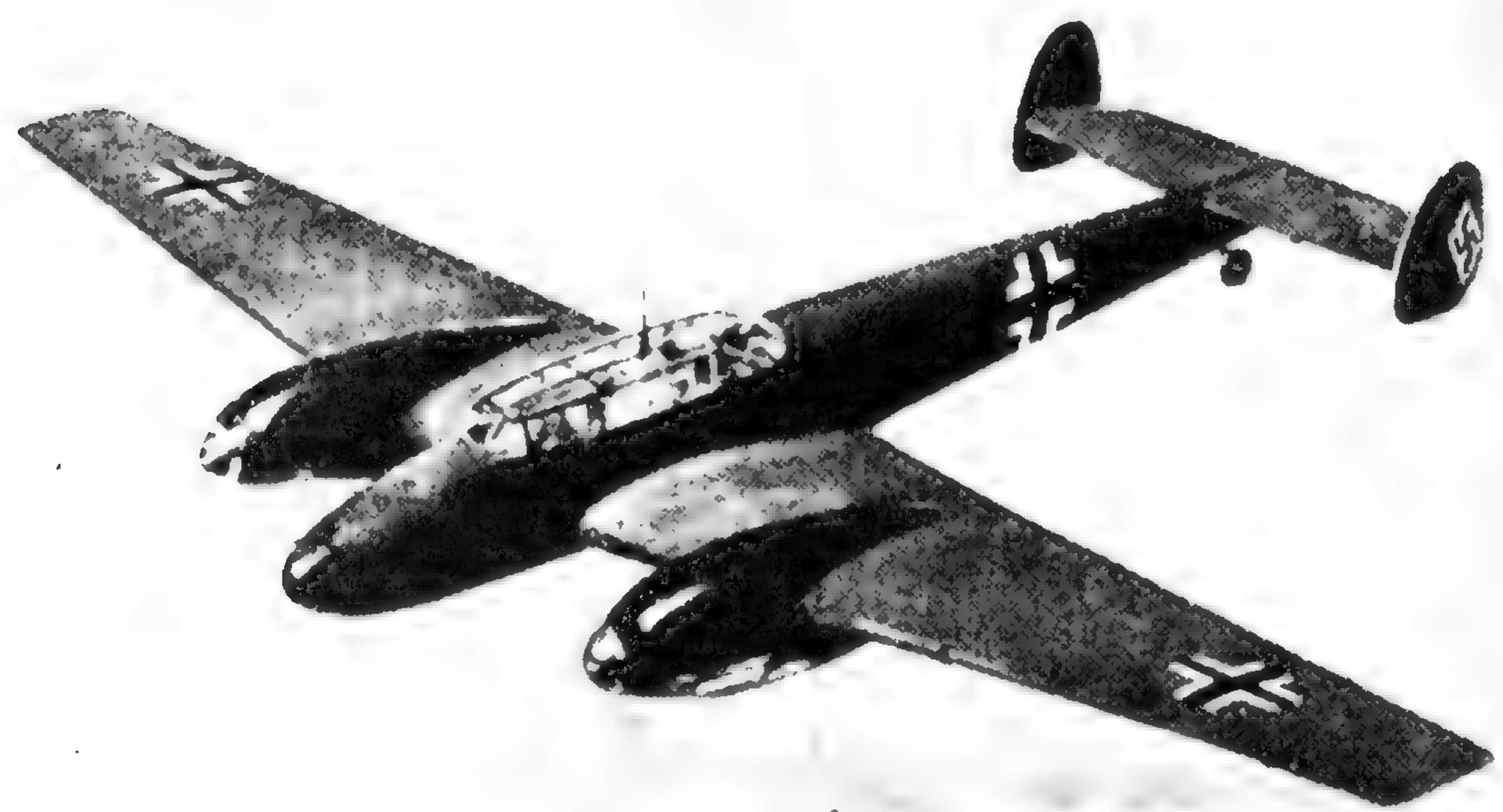
Vulnerability:

Remarks: Latest versions in service have DB601N engines. This would give slightly increased performance.

Tactical Data:

MESSERSCHMITT 110 TWIN ENGINE FIGHTER

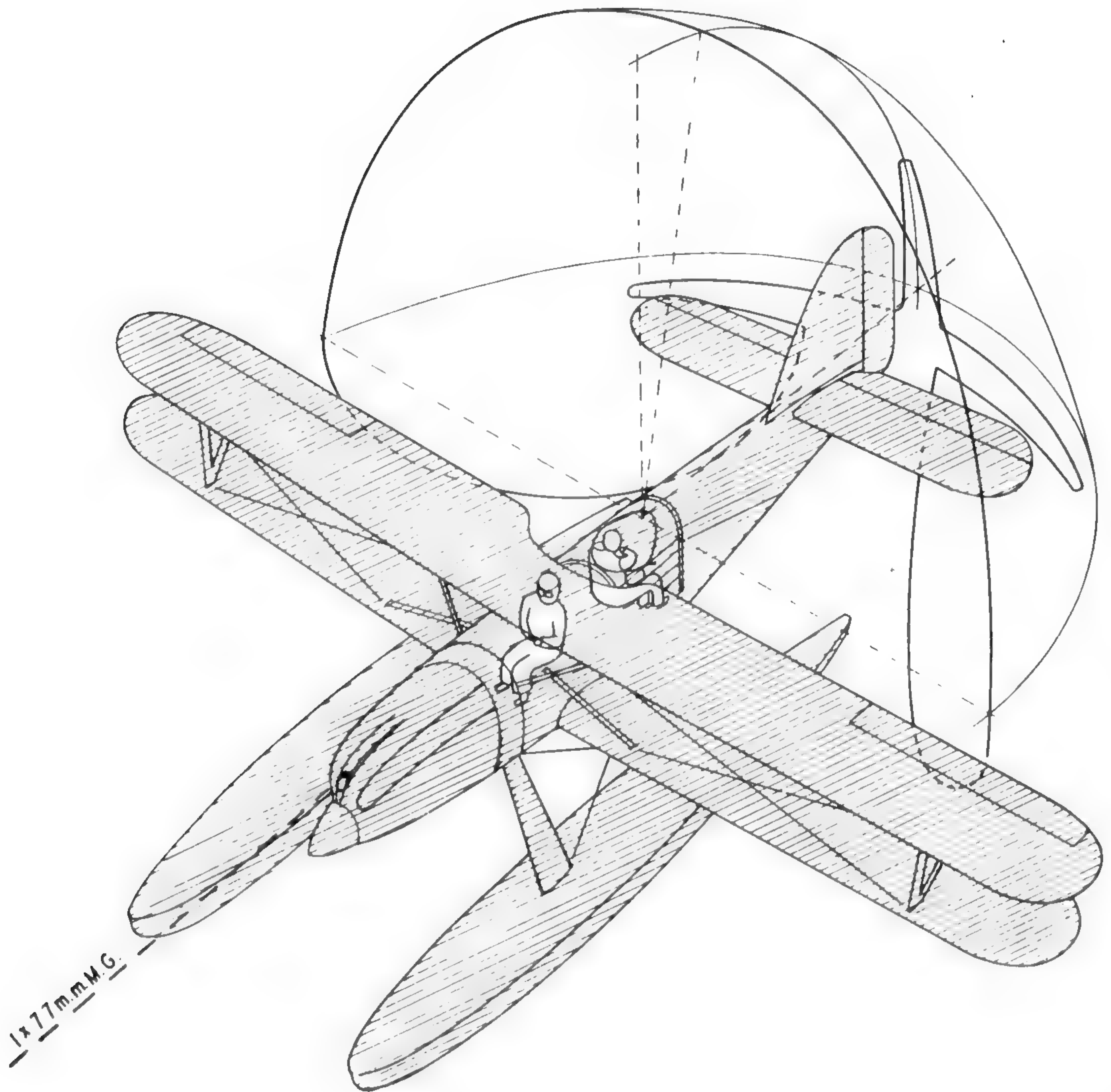
"DOC"



KAWANISHI TYPE 94 NAVY SINGLE ENGINE OBSERVATION
SEAPLANE

"ALF"

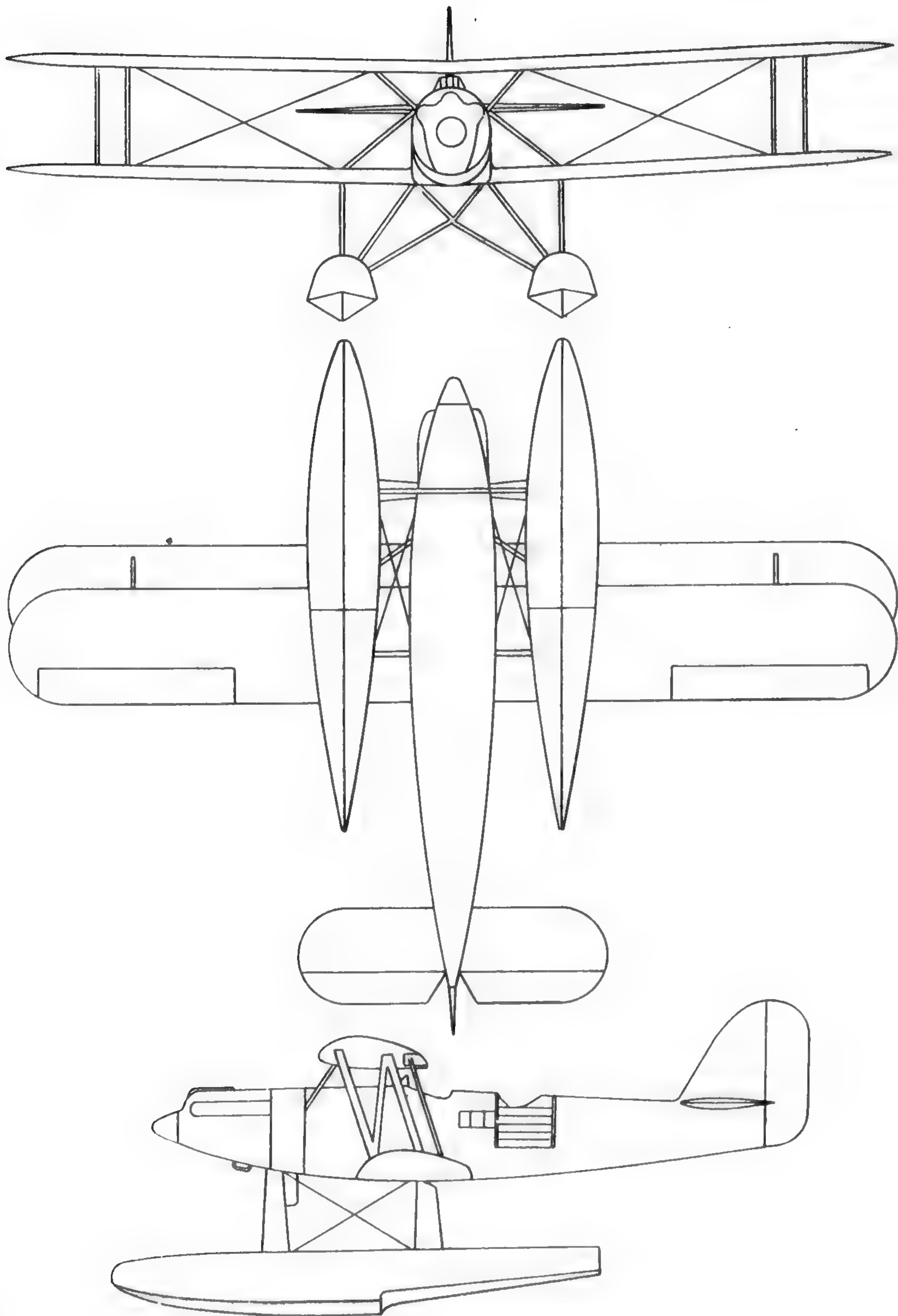
1 x 7.7 m.m. M.G.



OBSERVATION

KAWANISHI TYPE 94 NAVY SINGLE ENGINE OBSERVATION
SEAPLANE

"ALF"

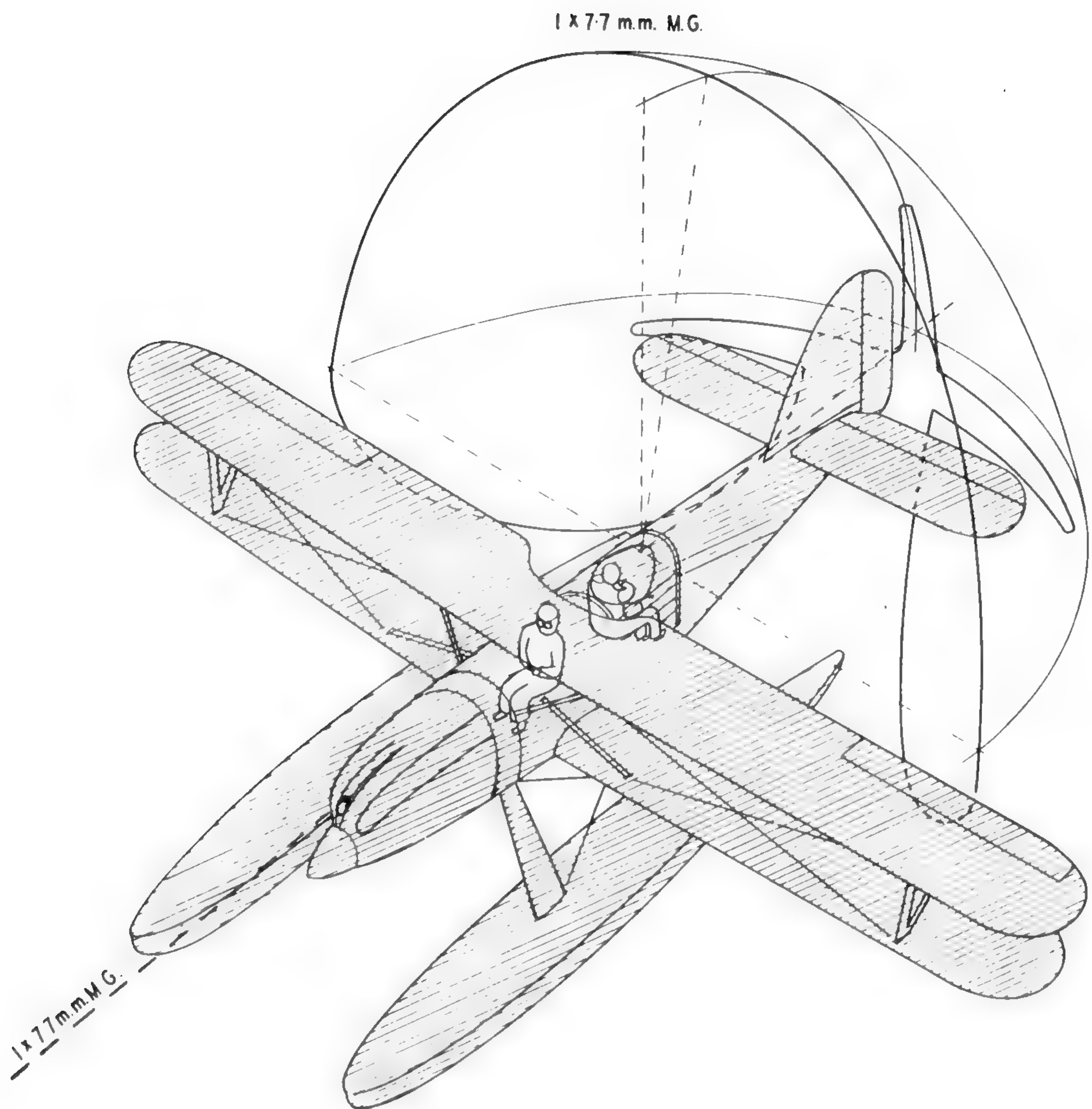


Change 1

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KAWANISHI TYPE 94 NAVY SINGLE ENGINE OBSERVATION
SEAPLANE

“ALF”



KAWANISHI TYPE 94 NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"ALF"

Originally Manufactured by: Kawanishi

Also Manufactured by:

Crew: Three

Engines: One Hiro 91 W Type, liquid-cooled, 12-cylinder, developing 600 h.p. at sea level.

Dimensions: Wing Span 46' 0" Length 34' 0" Height 15' 6"

	Empty	Normal	Full Military Load
<i>Weights:</i>	4,260	6,100	6,600

Maximum Speed: 140 miles per hour at 5,000 ft.

Rate of Climb:

Service Ceiling: 18,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>	535	116	500	120	145
<i>Normal</i>	550	120		120	145
<i>Max. Fuel</i>					

Radio:

Armour:

Armament: 1 x 7.7mm. M.G., through airscrew
1 x 7.7mm. M.G., flexible dorsal

Ammunition: 500 rounds for forward M.G.
700 rounds for dorsal M.G.

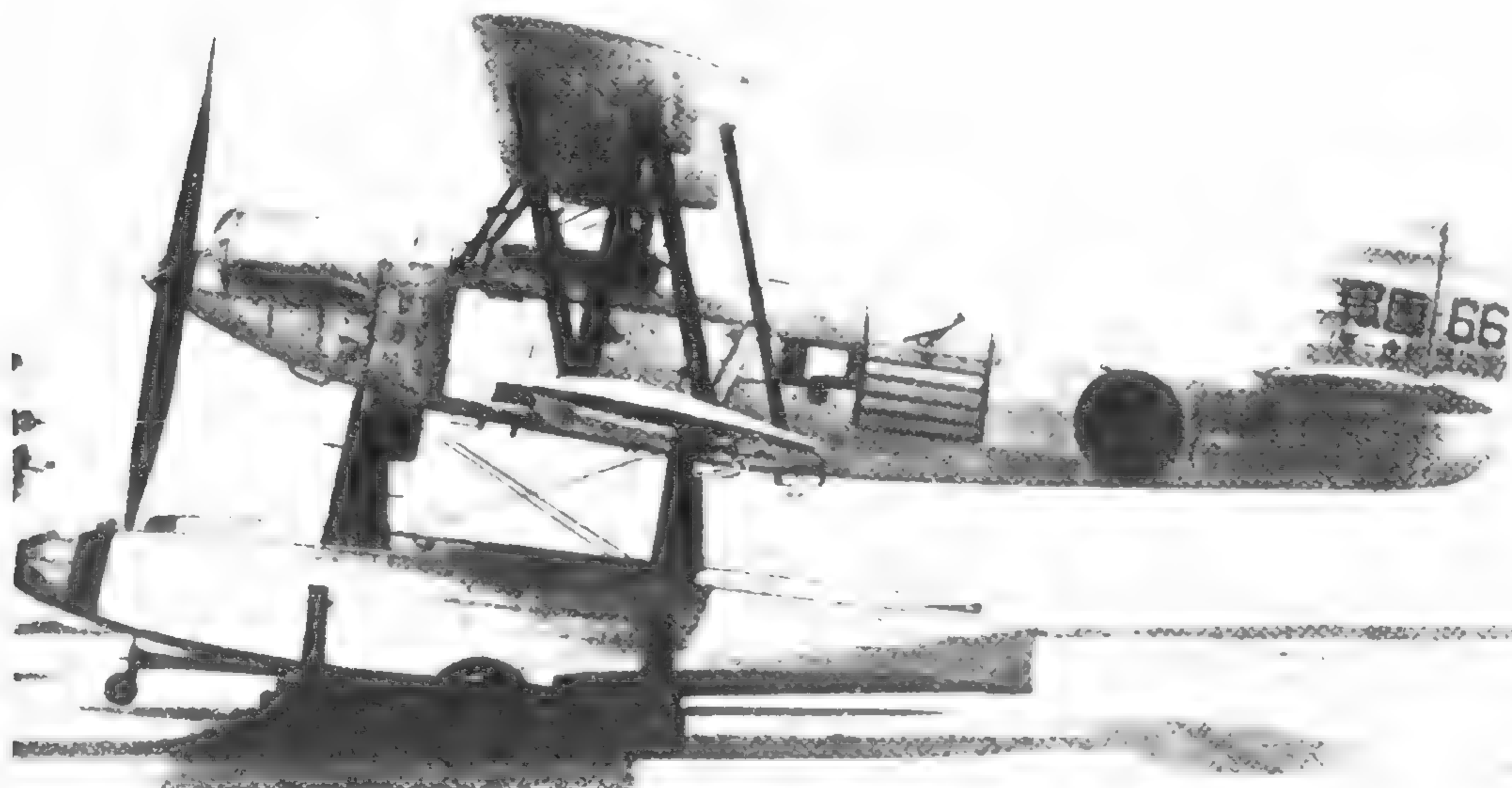
Vulnerability:

Remarks: This aircraft fitted with Mitsubishi V Type 800 h.p. liquid-cooled engine, and may be known as the Type 97, RF/P.

Tactical Data:

KAWANISHI TYPE 94 NAVY SINGLE ENGINE OBSERVATION
SEAPLANE

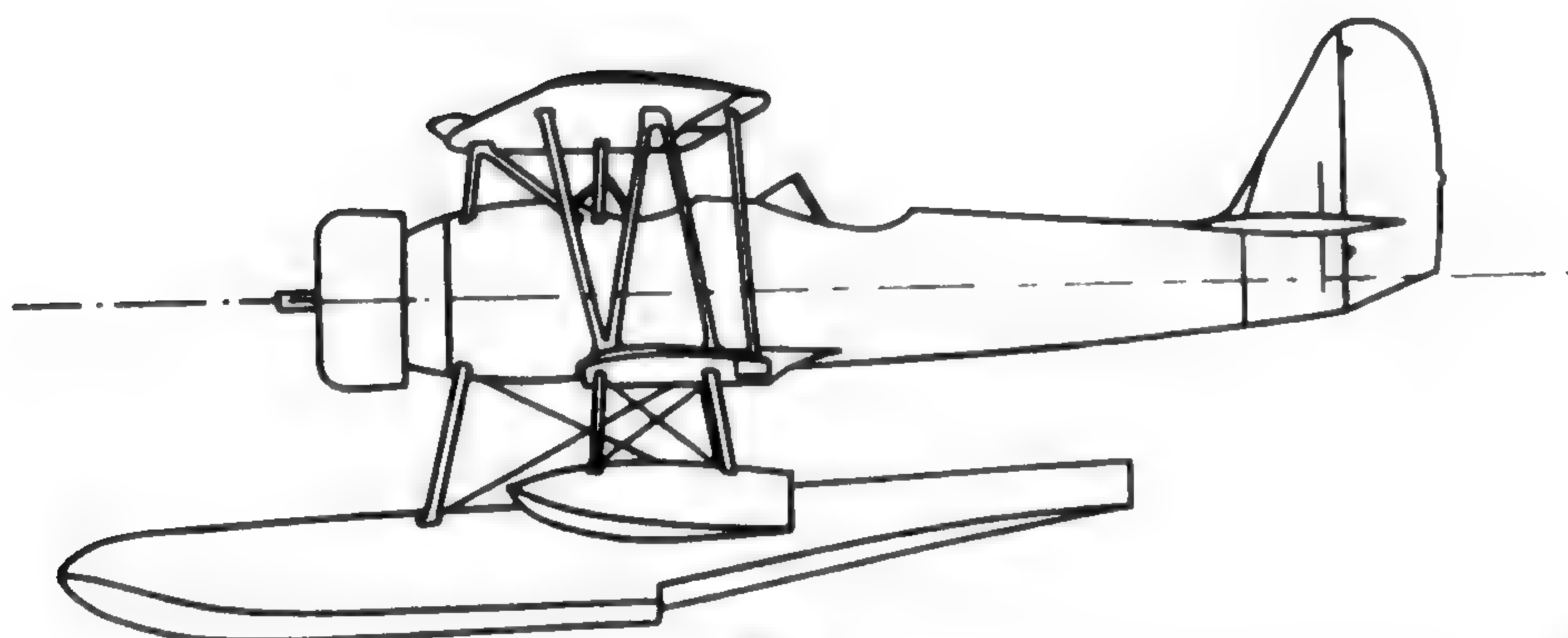
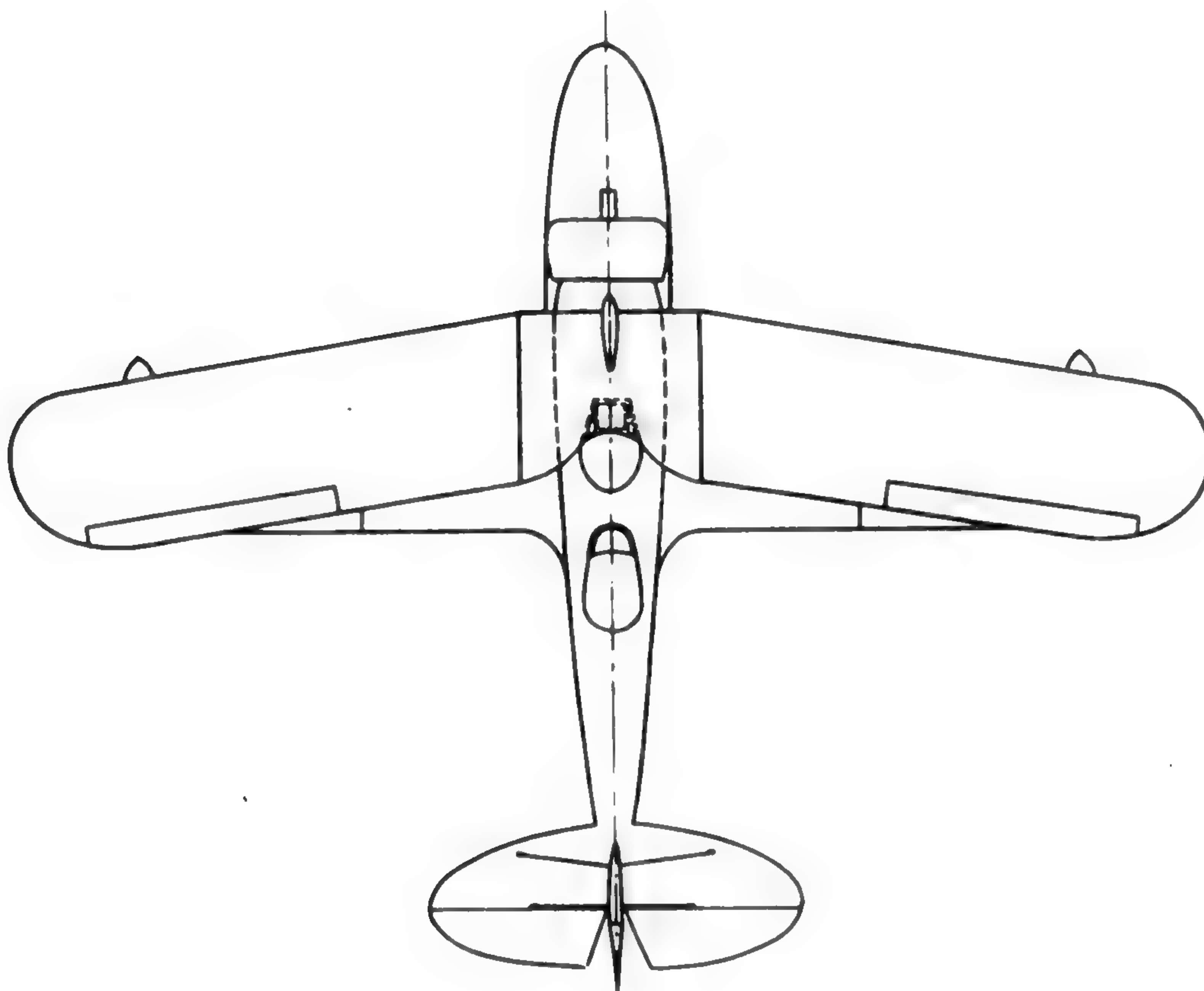
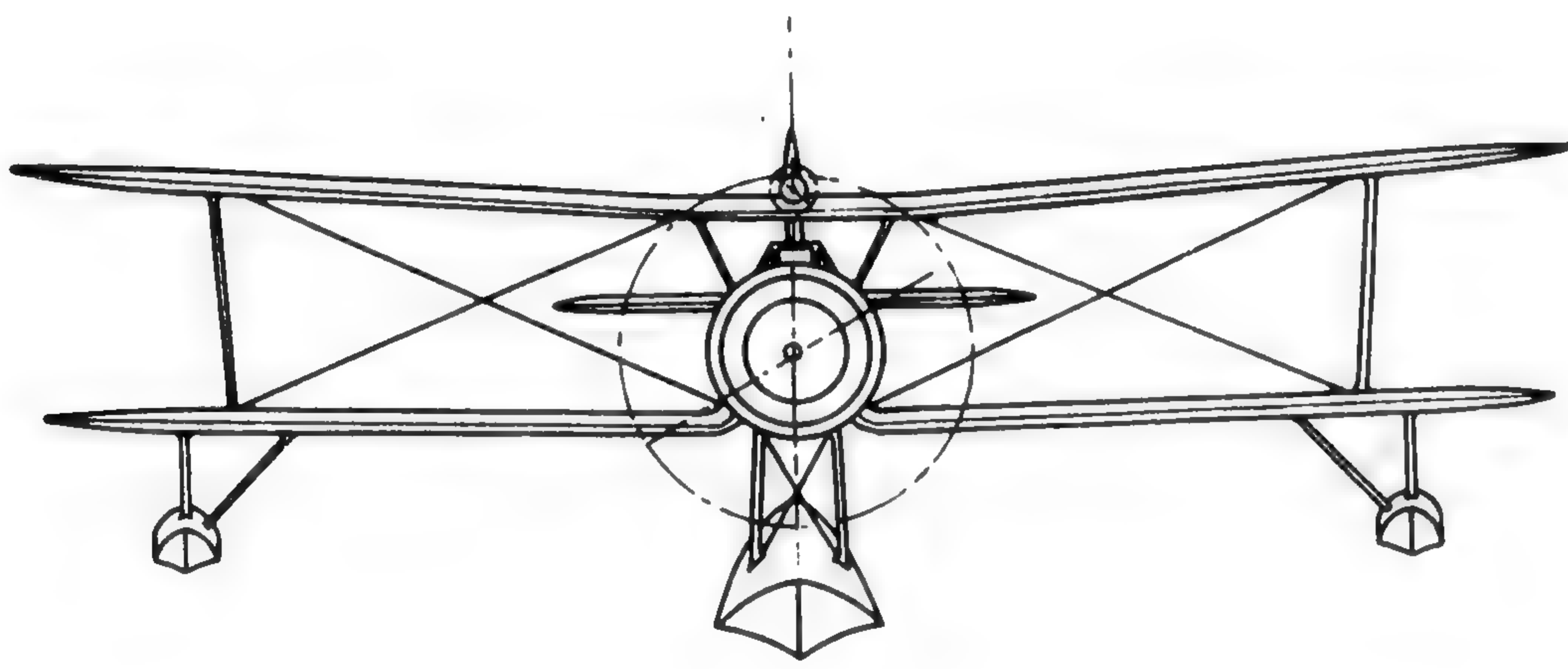
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Change 1

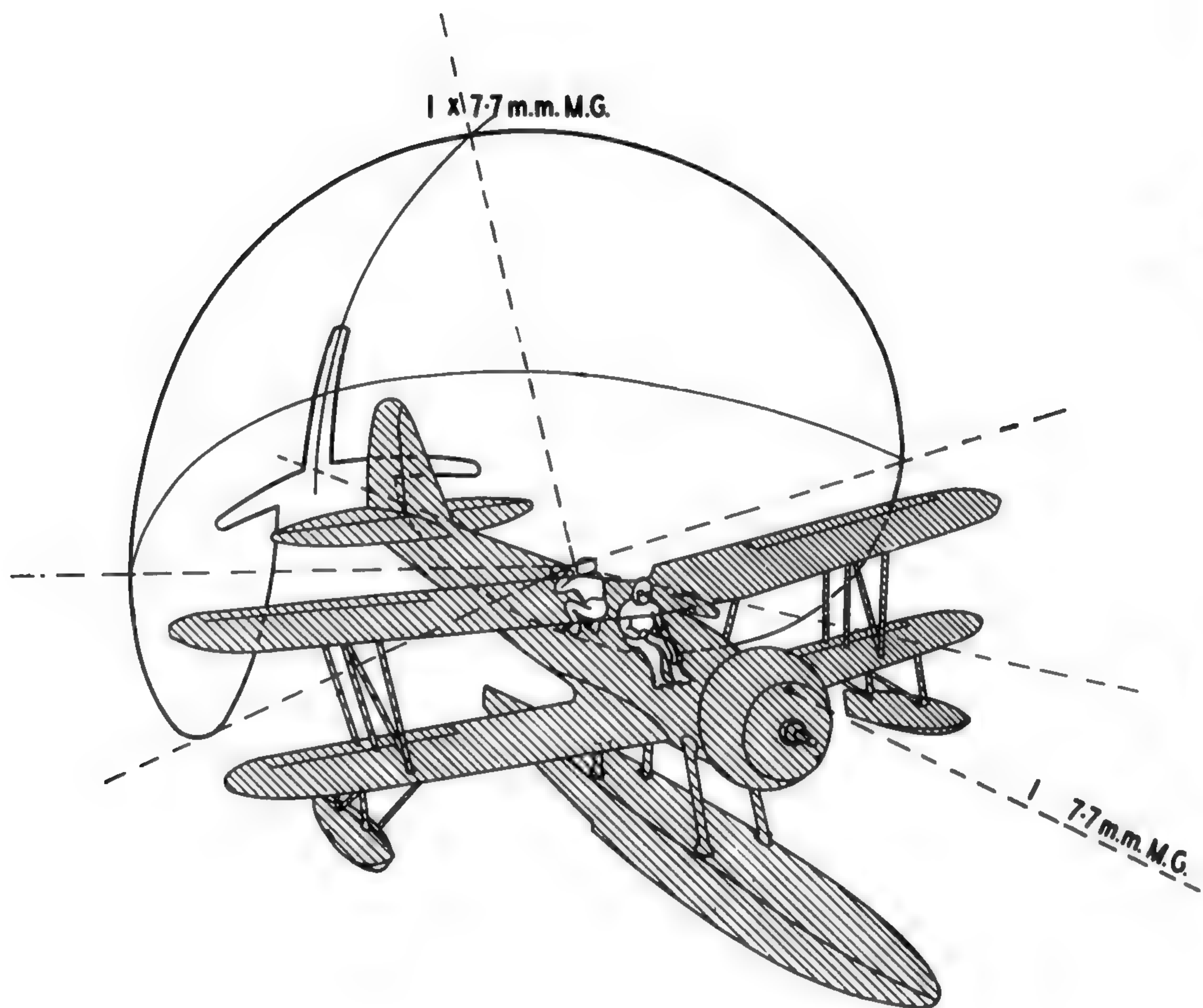
TYPE 95 NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"DAVE"



TYPE 95 NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"DAVE"



NAKAJIMA TYPE 95 NAVY SINGLE ENGINE OBSERVATION
SEAPLANE

"DAVE"

Originally Manufactured by: Nakajima

Also Manufactured by: Kawanishi

Crew: Two

Engine: One "Kotobuki," Mod. 2, 9 cylinder radial, air-cooled, rated 600 horsepower at 11,000 ft.

Dimensions: Wing Span 36' 2" Length 27' 11" Height 13' 2"

	Empty	Full Military Load	Extra Fuel
<i>Weights:</i>	3,880 lbs.	5,800 lbs.	

Maximum Speed: 184 miles per hour at 7,000 ft.

Rate of Climb: 9,840 ft. in 6 min., 18 sec.

Service Ceiling: 26,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U. S. Gal.
<i>Max Bombs</i>	320	125	500 lbs.	85	102
<i>Max. Fuel</i>	500	135	220 lbs.	120	145

Radio: W/T carried.

Armour: Nil.

Armament: 1 x 7.7 mm. machine-gun fixed forward.
1 x 7.7 mm. machine-gun flexible in rear cockpit.

Ammunition: 500 rounds for fixed gun.
700 rounds for flexible gun.

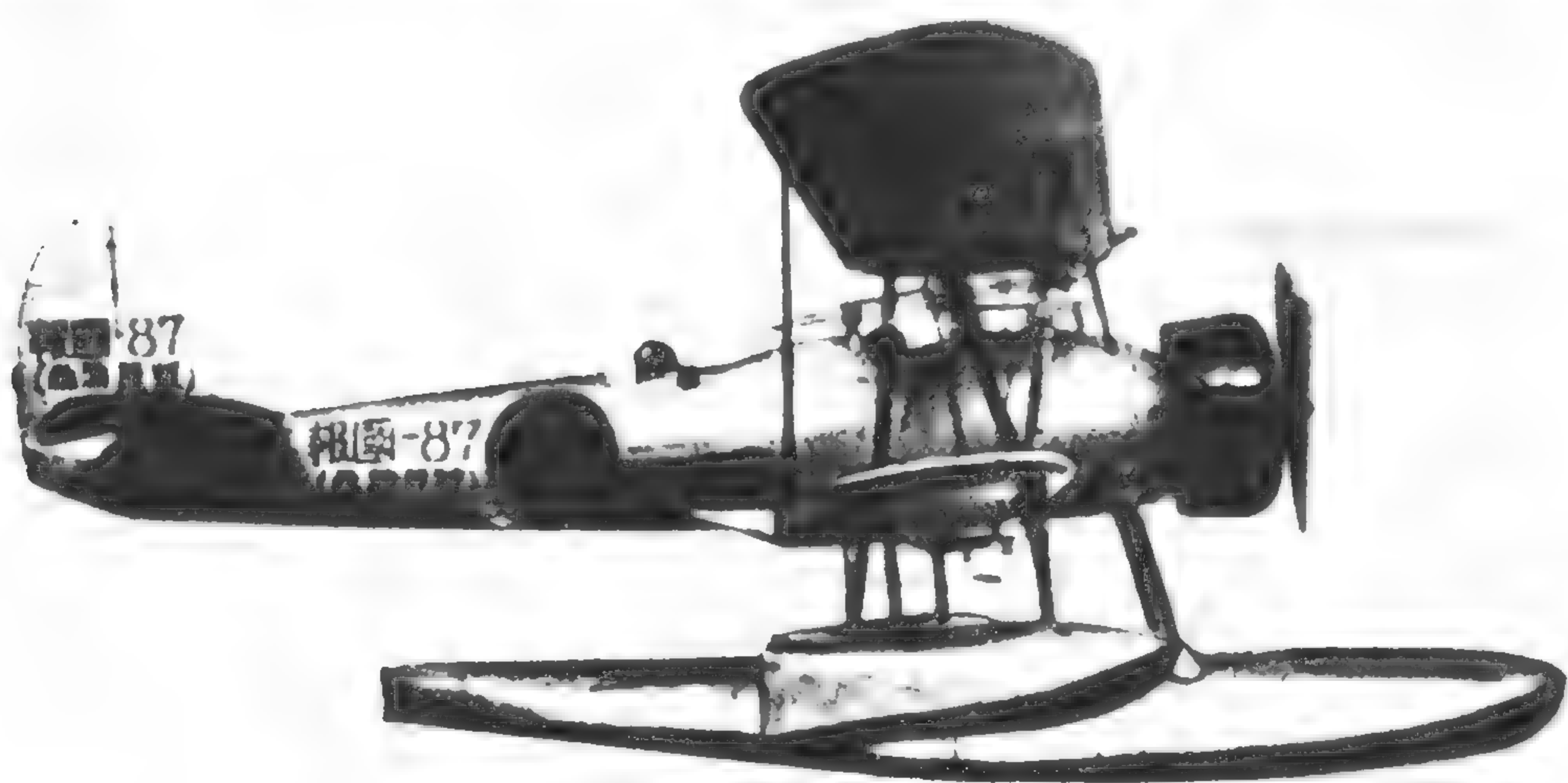
Vulnerability: Fuel tanks not self-sealing.

Remarks:

Tactical data:

NAKAJIMA TYPE 95 NAVY SINGLE ENGINE OBSERVATION
SEAPLANE

“DAVE”



TYPE 96 NAVY SINGLE ENGINE OBSERVATION SEAPLANE

“SLIM”

Originally Manufactured by: Probably Watanabe

Also Manufactured by:

Crew:

Engines: One Amakaze, Type 12

Dimensions: Wing Span 33' Length 25' Height 10' 8"

Empty

Normal

Full Military Load

Weights:

Maximum Speed: 170 m. p. h. at 11,000 ft.

Rate of Climb: 9,840 ft. in 9 min. 41 sec.

Service Ceiling: 22,000 ft.

RANGE :

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U. S. Gal.
Max. Bombs					
Normal	500				
Max. Fuel					

Radio:

Armour:

Armament: 1 x 7.7 mm. (flexible) M.G.

Ammunition:

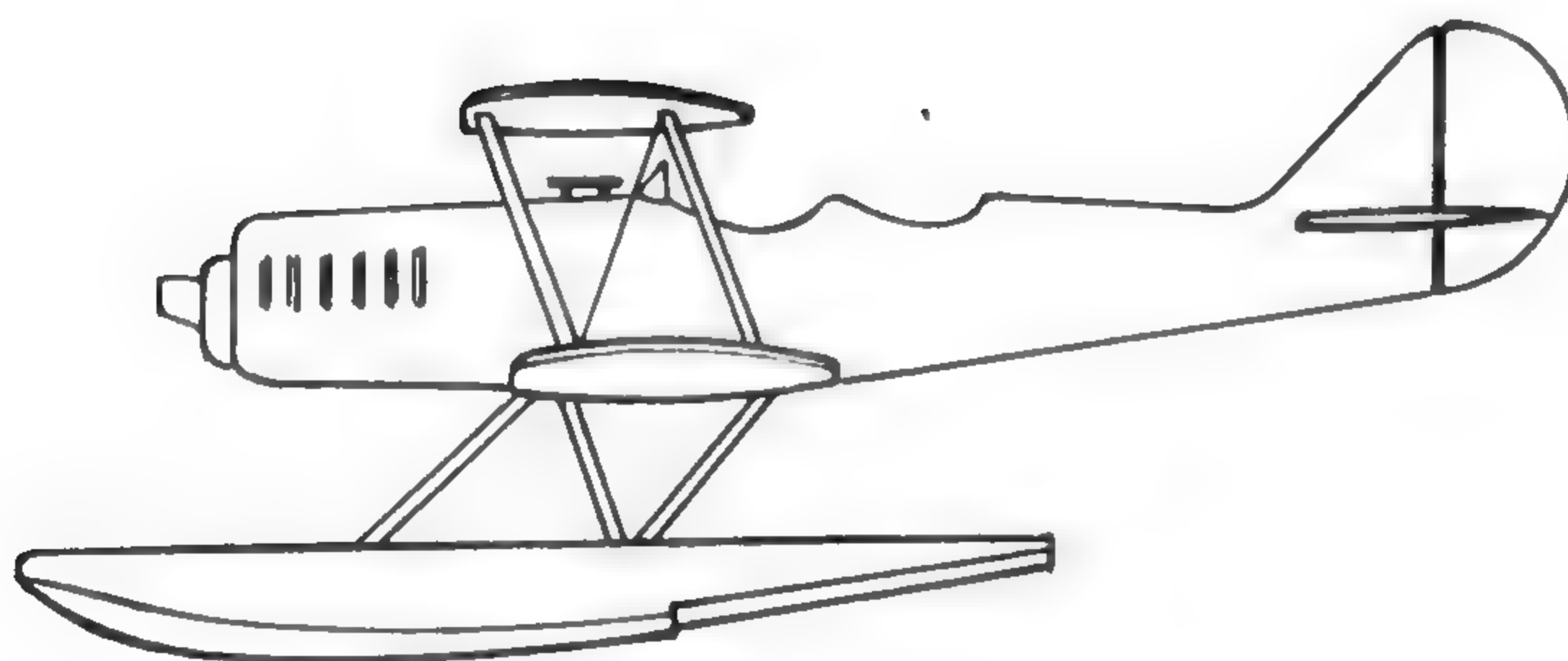
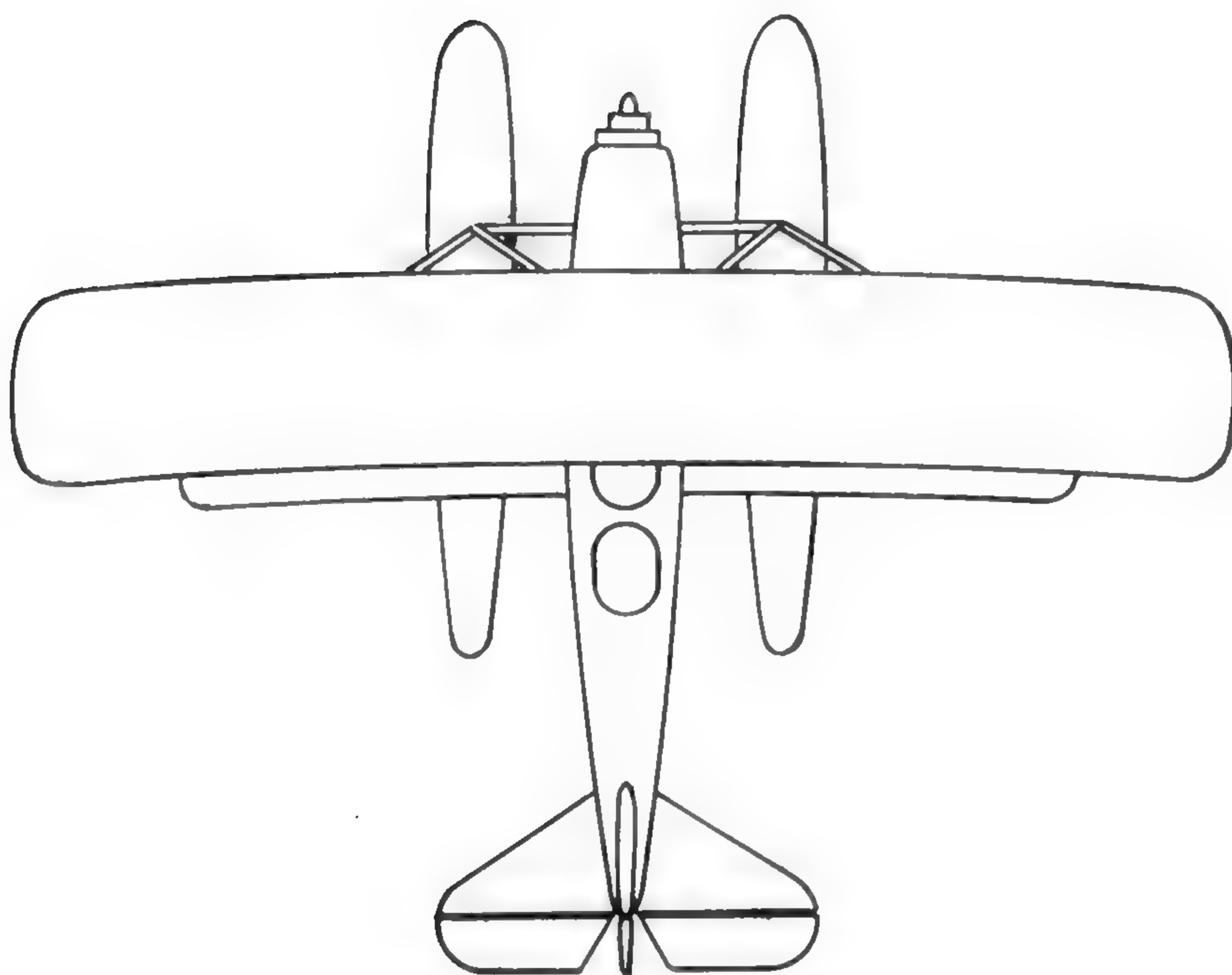
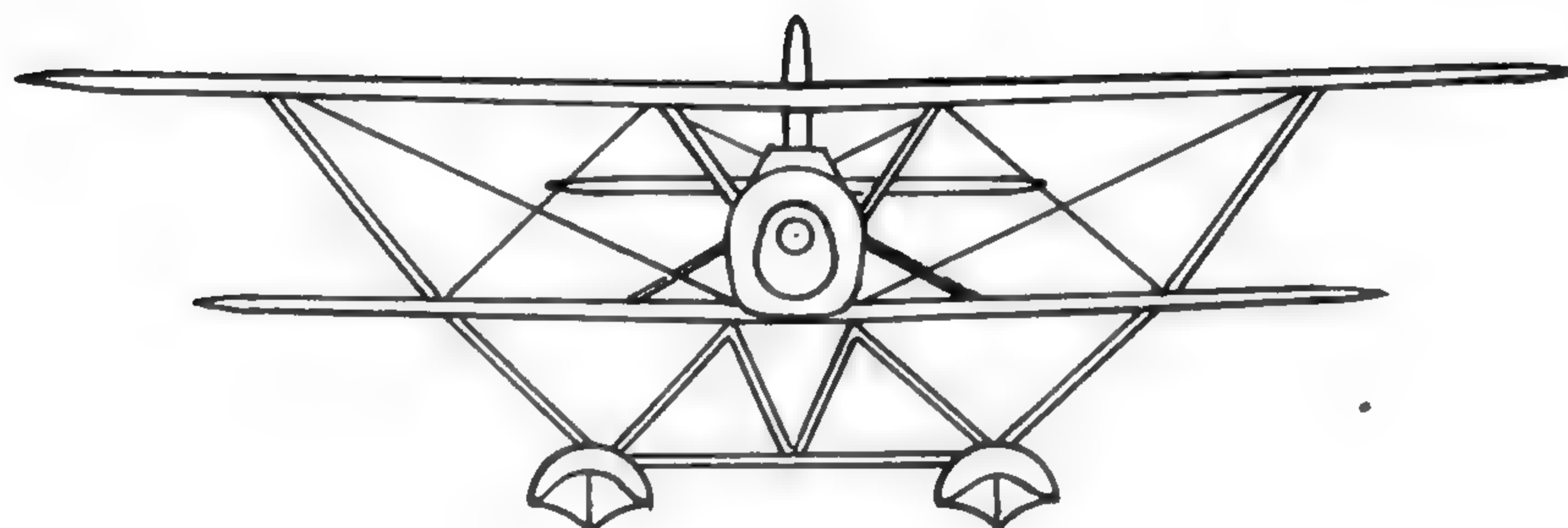
Vulnerability:

Remarks: This aircraft is very small, for use in submarines, probably bi-plane. It is estimated that this plane is launched one hour after SS has surfaced.

Tactical Data:

KAWANISHI TYPE 97 NAVY SINGLE ENGINE OBSERVATION
SEAPLANE

“BOB”



48-4

Change 1

KAWANISHI TYPE 97 NAVY SINGLE ENGINE OBSERVATION
SEAPLANE

“BOB”

Originally Manufactured by: Kawanishi

Also Manufactured by: Aichi

Crew: Two

Engine: Probably Zuisai Model 2

Dimensions: Wing Span 46' Length 34' Height 15' 6"

Empty

Full Military
Load

Extra Fuel

Weights: 4,730 lb.

5,630 lb.

Maximum Speed: 180 m. p. h. at 13,000 ft.

Rate of Climb:

Service Ceiling: 30,000 ft.

RANGE

	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Normal</i>	410	155 m. p. h.		120	
<i>Max. Fuel</i>					

Radio:

Armour: Nil

Armament: Forward Fuselage 1 x 7.7 mm. (fixed)

Dorsal

1 x 7.7 mm. (flexible)

Ammunition:

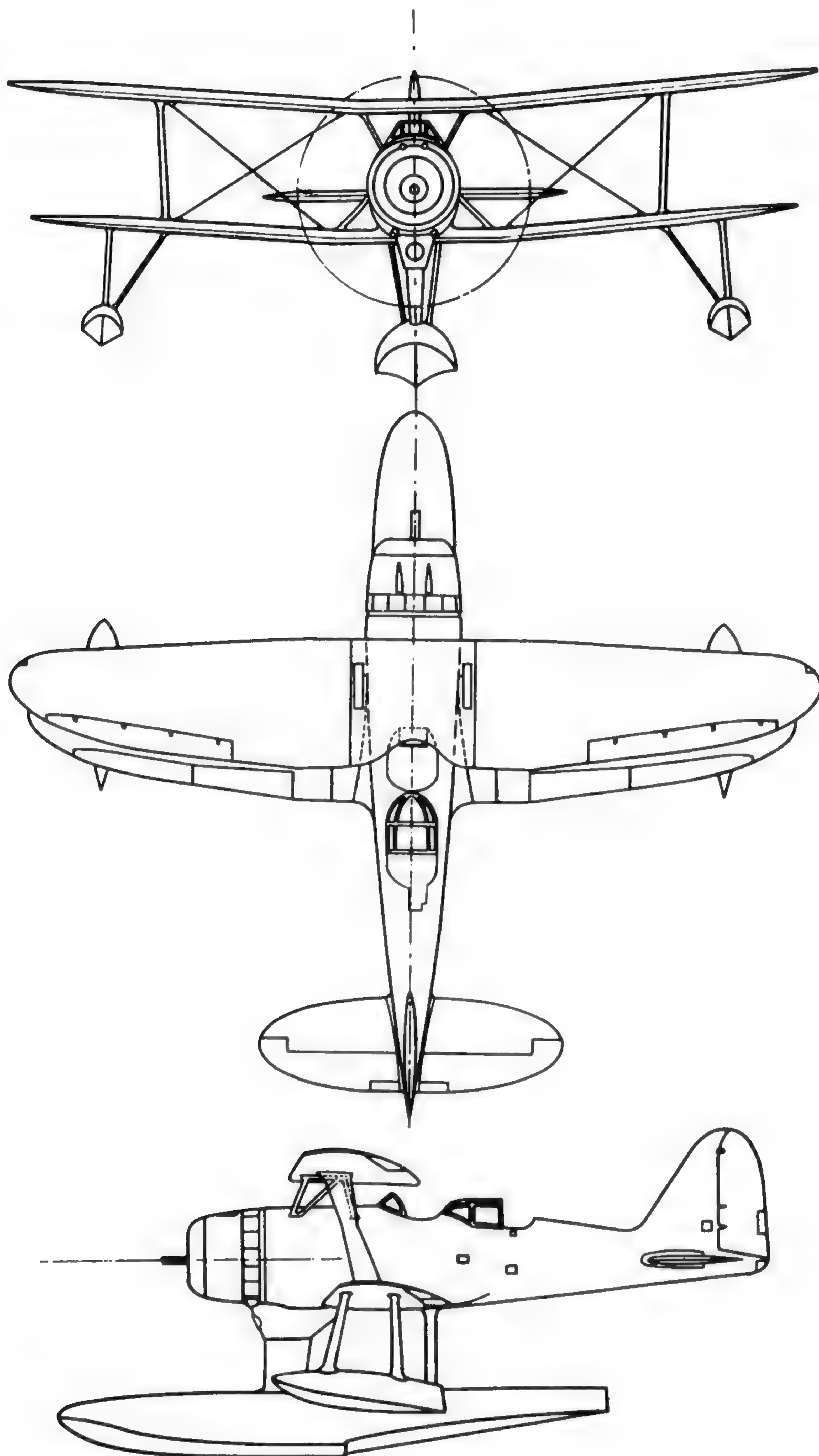
Vulnerability:

Remarks: Twin-float Biplane. It is believed that this plane may be known as "Type 94 Reconnaissance Seaplane Model 12" adopted in November 1938. Reported carrying torpedoes. Metal, Wood, Fabric construction.

Tactical Data:

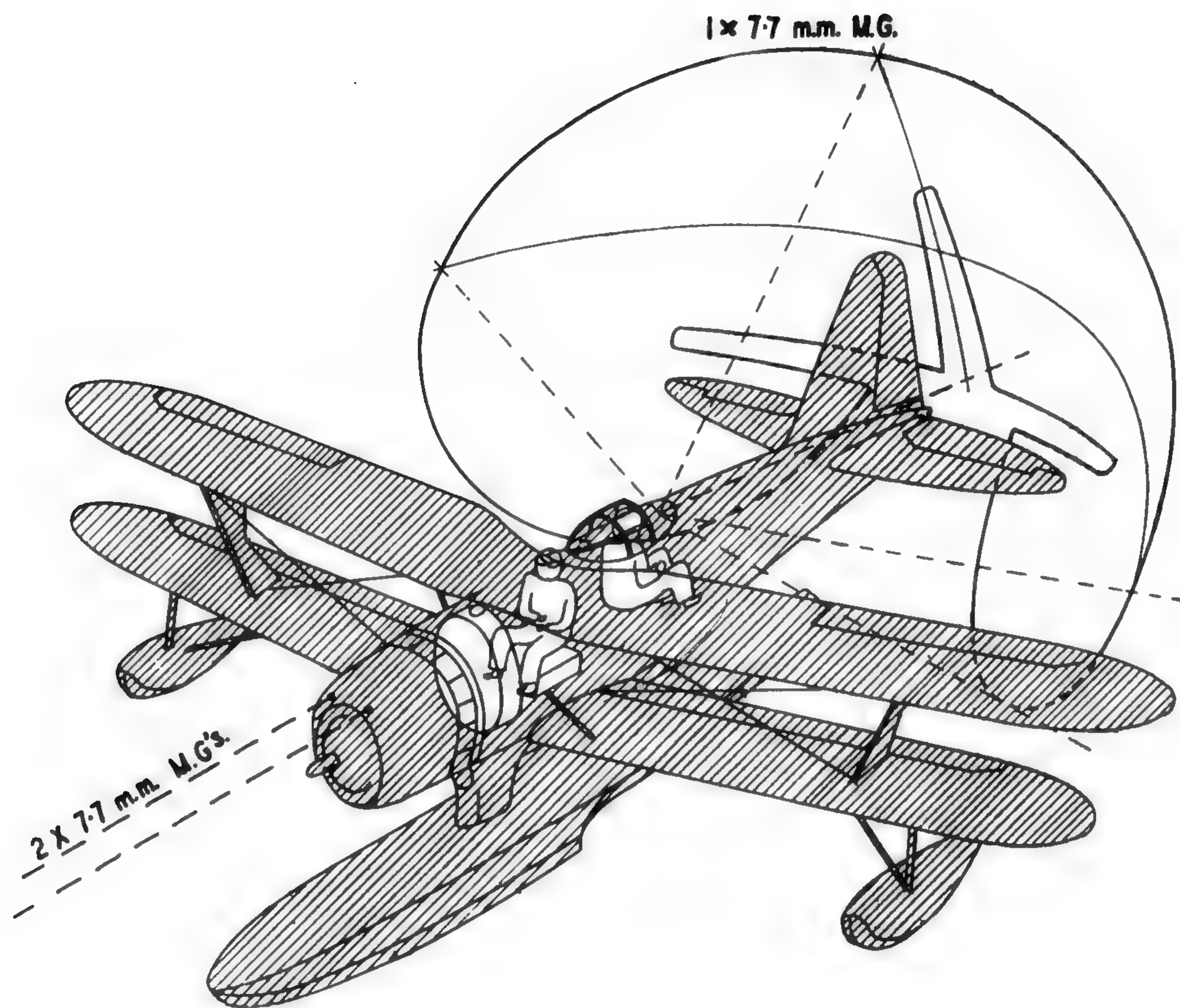
TYPE O NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"PETE"



TYPE O NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"PETE"



TYPE O NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"PETE"

Originally Manufactured by: Sasebo Naval Arsenal.

Also Manufactured by:

Crew: Two.

Engine: One Zuisai Model 13, 14 cylinder, twin row, air cooled, radial engine.

Power ratings (estimated): 830 h. p. at sea level.
940 h. p. at 13,100 ft.

Dimensions: Wing span 37' 0" Length 32' 4" Height 15' 0"
Wing area (estimated), 365 sq. ft.

	Empty	Observation-Scout	With Bombs
Weights:	4,490 lbs.	6,030 lbs.	6,470 lbs.

Maximum Speed: As Observation Scout, 199 m. p. h. at sea level; 238 m. p. h. at 14,000 ft.
With 2 x 220 lb. bombs, 192 m. p. h. at sea level; 229 m. p. h. at 14,000 ft.

Rate of Climb: As Observation Scout: 2,100 ft. per min. at sea level; 2,360 ft. per min. at 13,100 ft.
With 2 x 220 lb. bombs: 1,870 ft. per min. at sea level; 2,090 ft. per min. at 13,100 ft.

Service Ceiling: 33,100 ft., observation-scout.
31,600 ft., with bombs.

RANGE:

Condition	Range Miles	Speed M. P. H.	Altitude Feet	Fuel U. S. Gal.
O/S, 90% Vm.	335	212	13,100	132
O/S, Max. Range	750	131	13,100	132
With bombs, 90% Vm.	320	205	13,100	132
With bombs, Max. Range	685	130	13,100	132

Radio:

Armor: None.

Armament: 2 x 7.7 mm fixed machine guns in forward fuselage.
1 x 7.7 mm flexible machine gun in rear cockpit.

Ammunition: 500 rounds for each fixed gun. 700 rounds for flexible gun.

Bombs: Provision is made for a bomb rack under each wing root outside of propeller arc. Maximum size bomb carried is assumed to be 220 lbs.

Vulnerability: No protection for crew, engine or fuel tanks. Tanks are located in front of pilot and aft of engine.

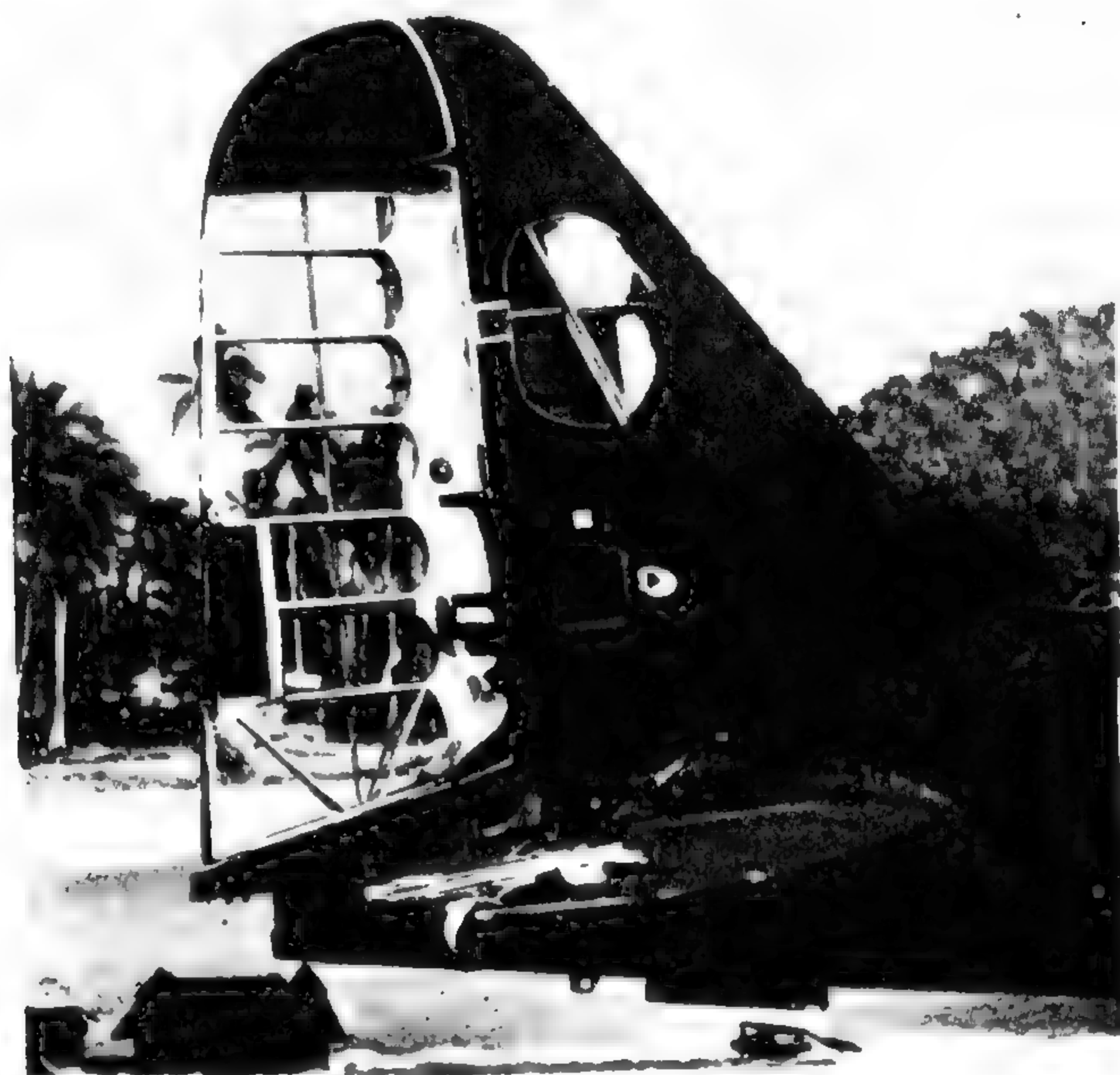
Remarks: Power ratings are not available on Zuisai Model 13 but estimates are made on the basis of Sakae Model 12.

Range is computed with allowance for fuel for rated power takeoff plus rated power climb to 13,100 feet.

Tactical Data:

TYPE O NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"PETE"



TYPE O NAVY SINGLE ENGINE OBSERVATION SEAPLANE

“GLEN”

Originally Manufactured by:

Also Manufactured by:

Crew:

Engines: One Amakaze, Type 12

Dimensions: Wing Span	Length	Height	
	Empty	Normal	Full Military Load

Weights:

Maximum Speed: 190 m. p. h.

Rate of Climb:

Service Ceiling:

RANGE :

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U. S. Gal.
Max. Bombs:					
Normal:	475				
Max. Fuel:					

Radio:

Armour:

Armament:

Ammunition:

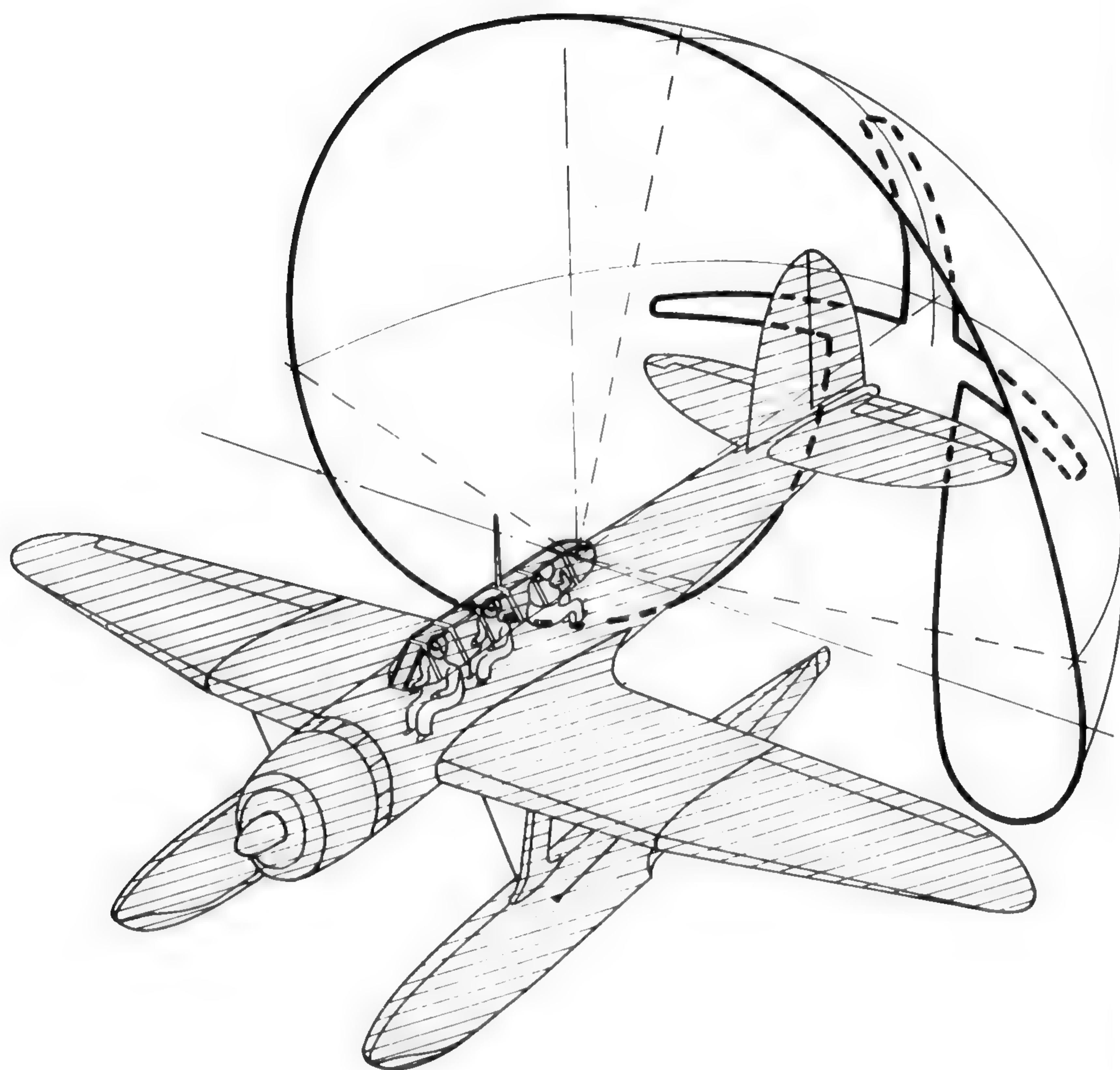
Vulnerability:

Remarks: This aircraft is very small, for use in submarines, probably bi-plane. It is estimated that this plane is launched one hour after submarine has surfaced.

Tactical Data:

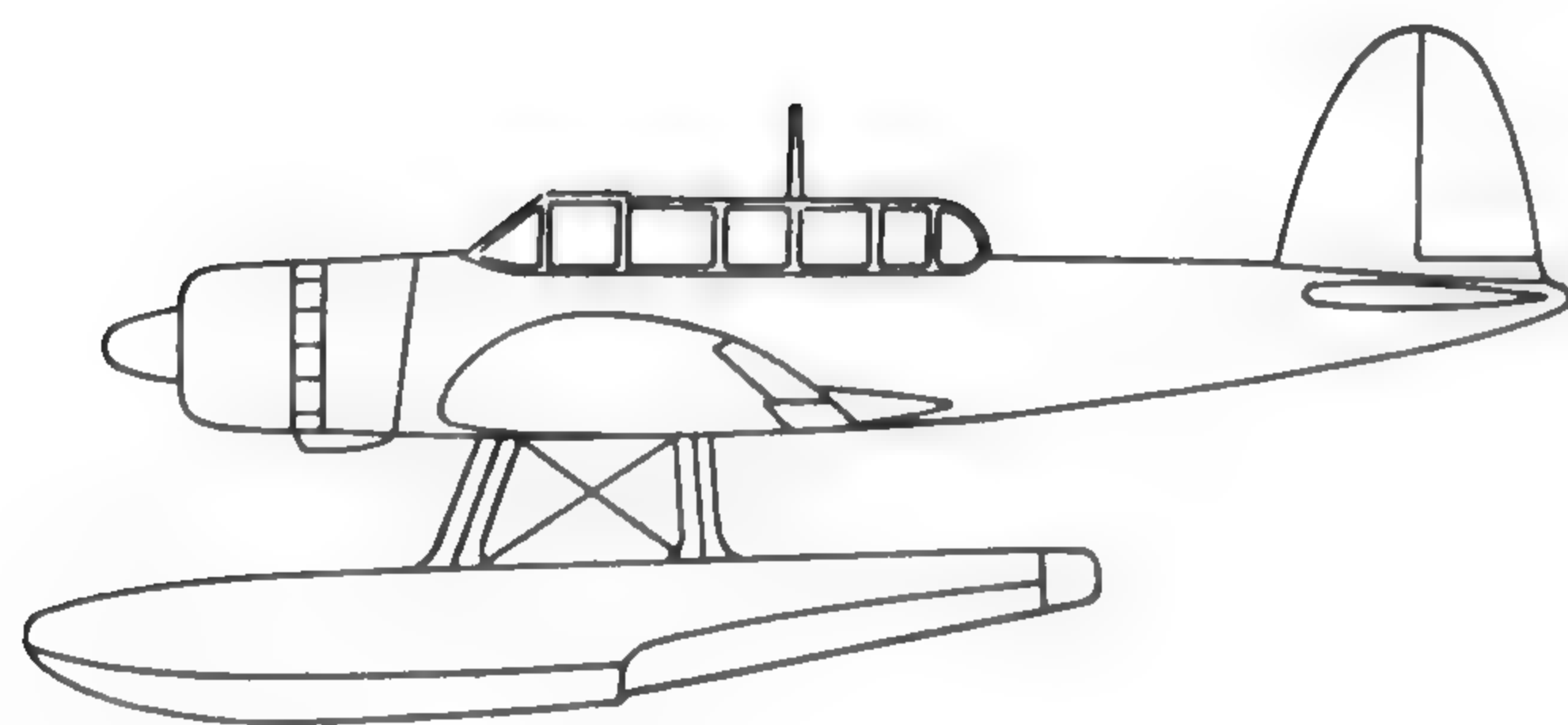
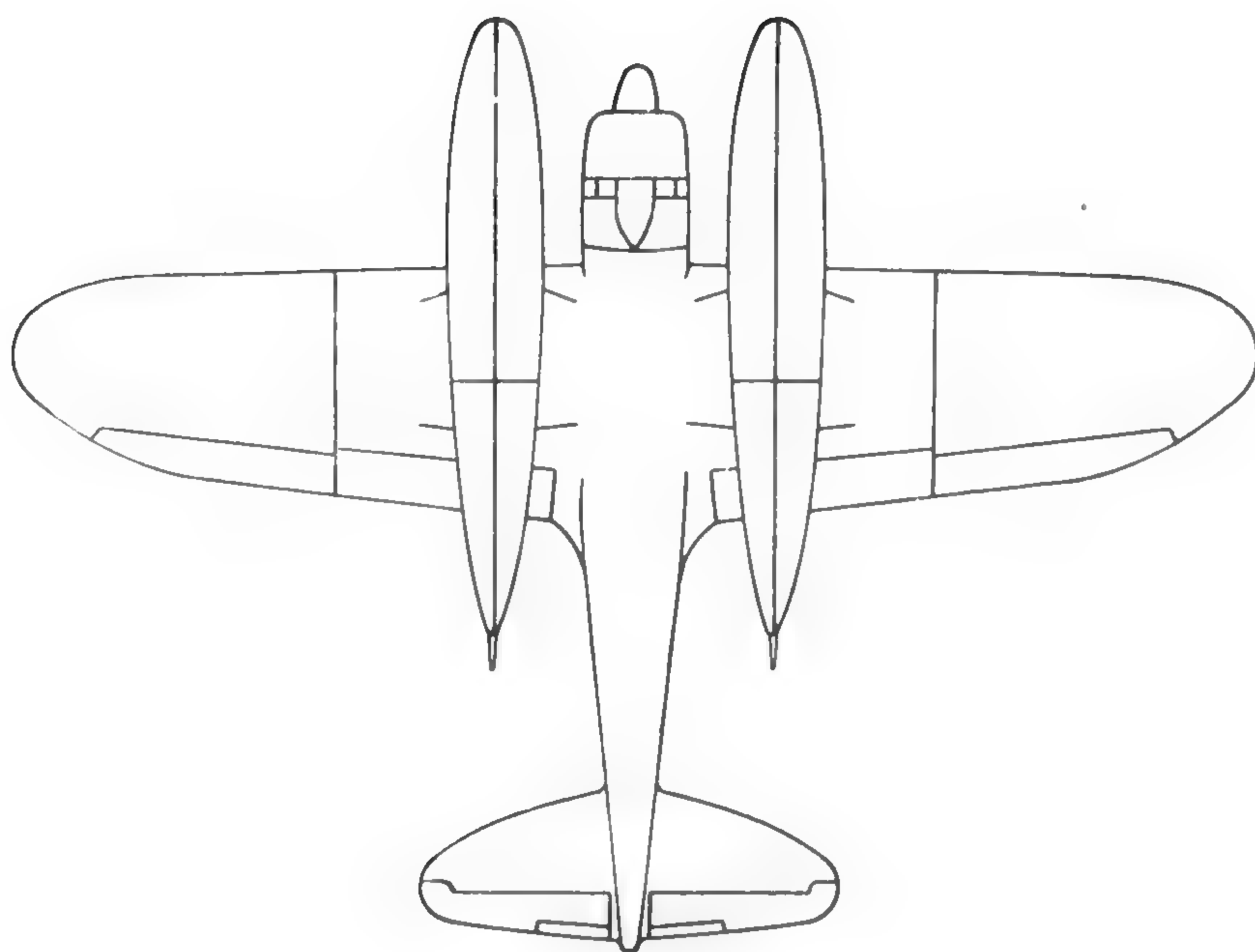
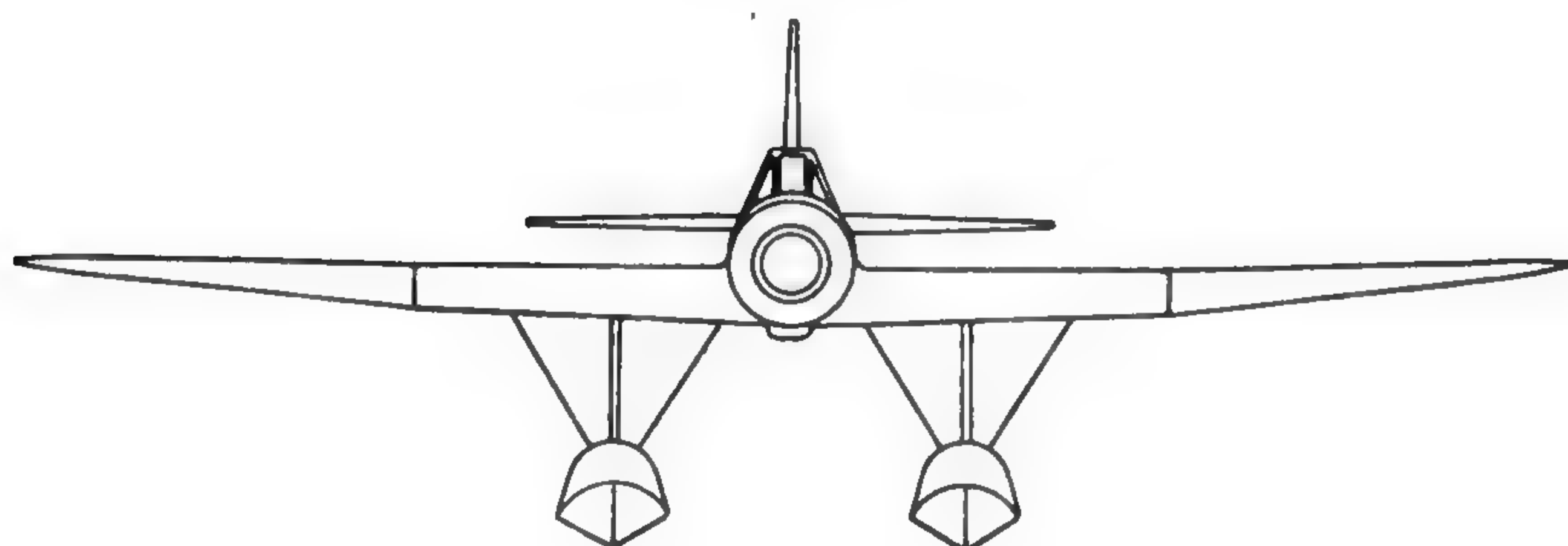
TYPE O NAVY SINGLE ENGINE OBSERVATION SEAPLANE
"JAKE"

1 x 7.7 mm. M.G



TYPE O NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"JAKE"



TYPE O NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"JAKE"

Originally Manufactured by:

Also Manufactured by: Watanabe.

Crew: Two or three.

Engines: One Kinsei Type 43 radial aircooled or Zuisai Model 11, developing 780 h. p. at sea level.

Dimensions: Wing span 48' 0"	Length 34' 0"	Height
Empty	Normal	Full Military Load

Weights:

Maximum Speed: 250 m. p. h. at 6,000 ft.

Rate of Climb: 1,750 ft. per minute.

Service Ceiling: 25,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U. S. Gal.
Max. Bombs	900	140	2 x 60 kg.		
Normal	950	155	1 x 60 kg.		
Max. Fuel	1,100	130	1 x 60 kg.		

Radio: Radio carried.

Armor: Nil.

Armament: 1 x 7.7 mm. Machine Gun, flexible, dorsal position.

Ammunition: 600 rounds.

Vulnerability: Fuel tanks not self-sealing; carried in wing roots and fuselage.

Remarks:

Tactical Data: Not very maneuverable and poor armament.

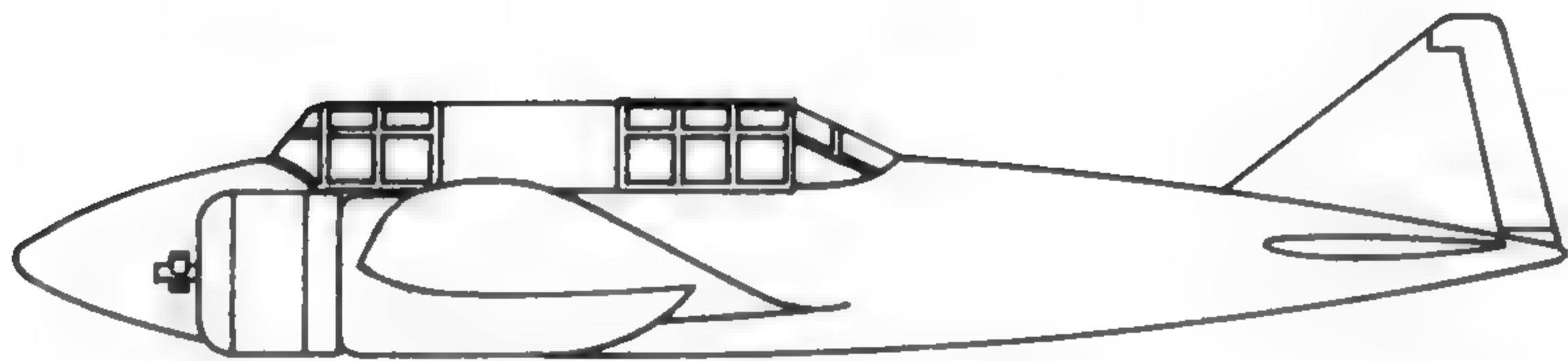
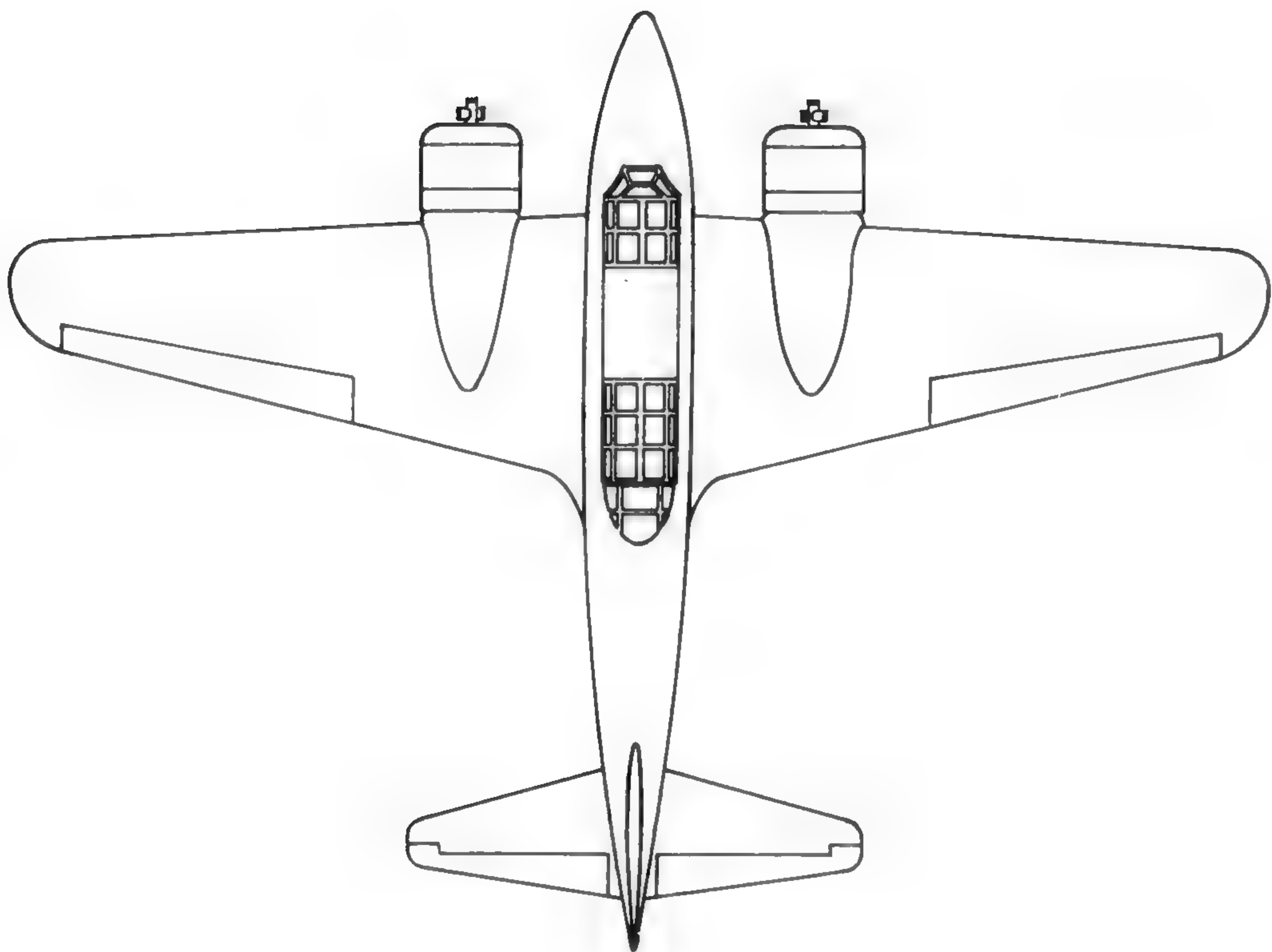
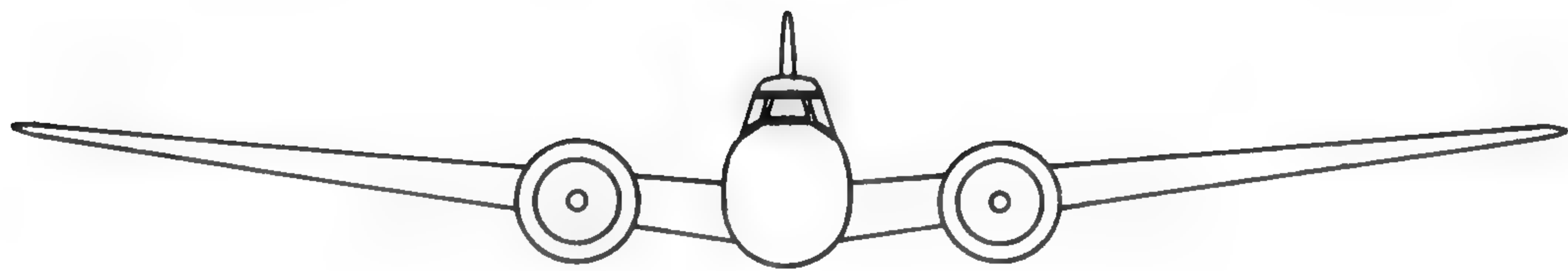
TYPE O NAVY SINGLE ENGINE OBSERVATION SEAPLANE

"JAKE"



TYPE 100 ARMY AND NAVY TWIN ENGINE OBSERVATION PLANE

“DINAH”



Provisional Drawings

TYPE 100 ARMY AND NAVY TWIN ENGINE OBSERVATION PLANE

"DINAH"

Originally Manufactured by:

Also Manufactured by:

Crew: Two.

Engine: Two-Nakajima Sakae 21 (?), 14 cylinder, twin-row, aircooled radial engines, equipped with two-speed supercharger.

Power ratings (Estimated):

Take off—1,120 h. p. at sea level.

Normal—1,000 h. p. at sea level.

Military—1,060 h. p. at 15,000 ft.

Dimensions: Wing span 50' Length 36' Wing area 350 sq. ft. (estimated)

	Empty	Normal
Weights:	8,395 lbs. (estimated)	11,200 lbs. (estimated)

Maximum Speed: 279 m. p. h. at sea level.
324 m. p. h. at 17,000 ft.

Rate of Climb: 3,300 ft. per min. at sea level.
2,990 ft. per min. at 15,000 ft.

Service Ceiling: 35,300 ft.

RANGE:

Condition	Miles	Speed M. P. H.	Altitude Feet	Fuel U. S. Gal.
Normal load, 90% Vm.	415	260	3,600	292
Normal load, Max. Range	1,010	152	3,600	292

Radio: Complete data is not available, but this aircraft is known to be equipped with a wireless transmitter.

Armor:

Armament:

Ammunition:

Bombs:

Vulnerability:

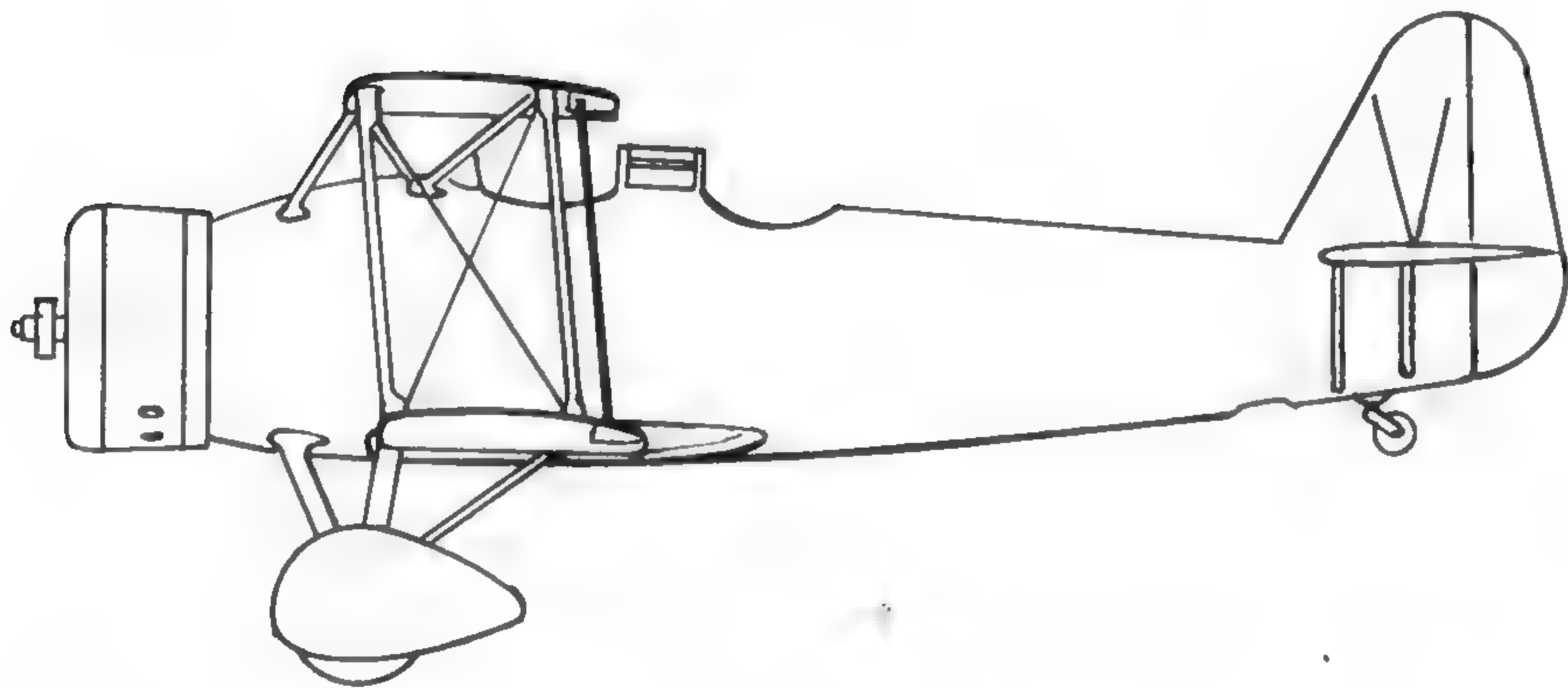
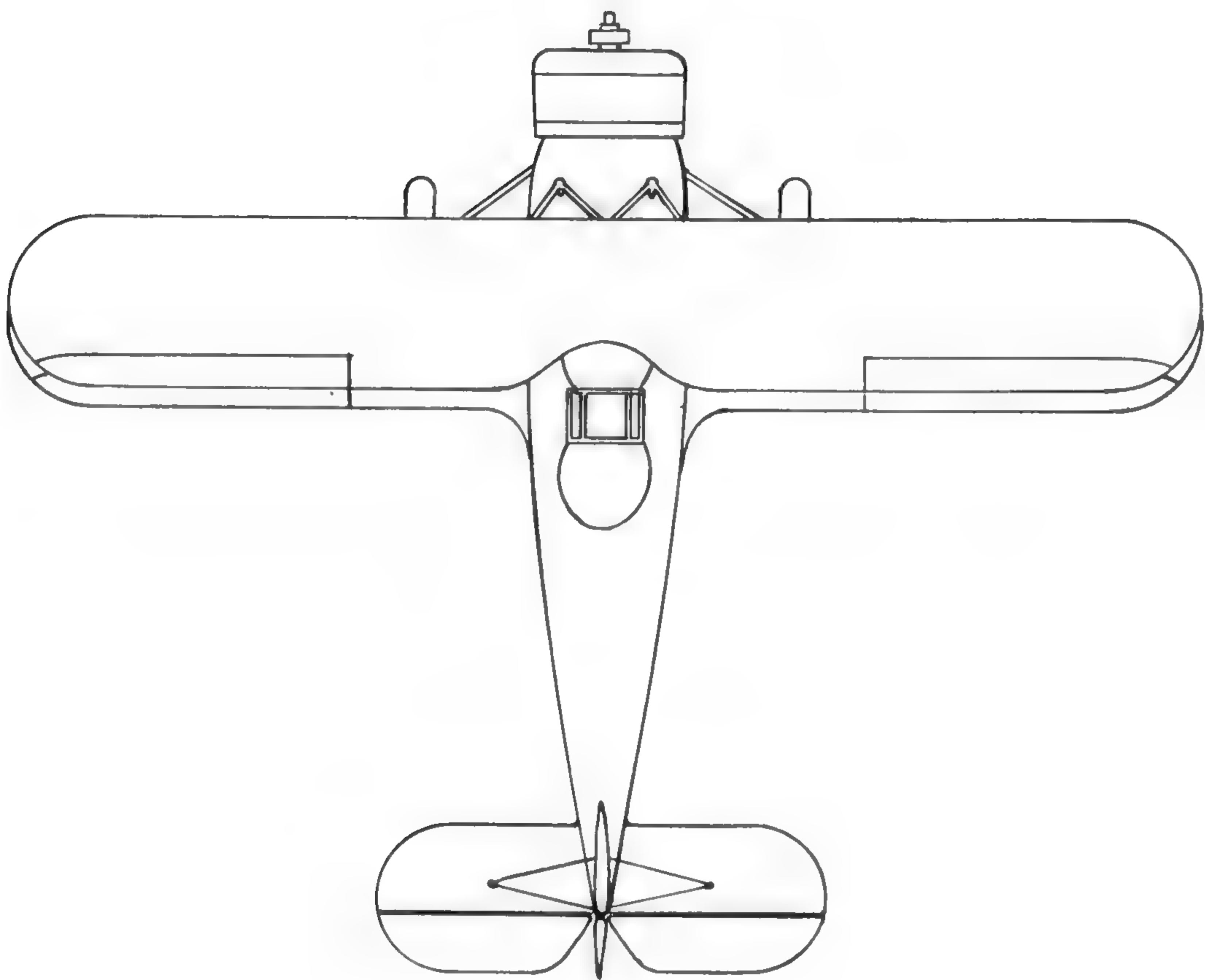
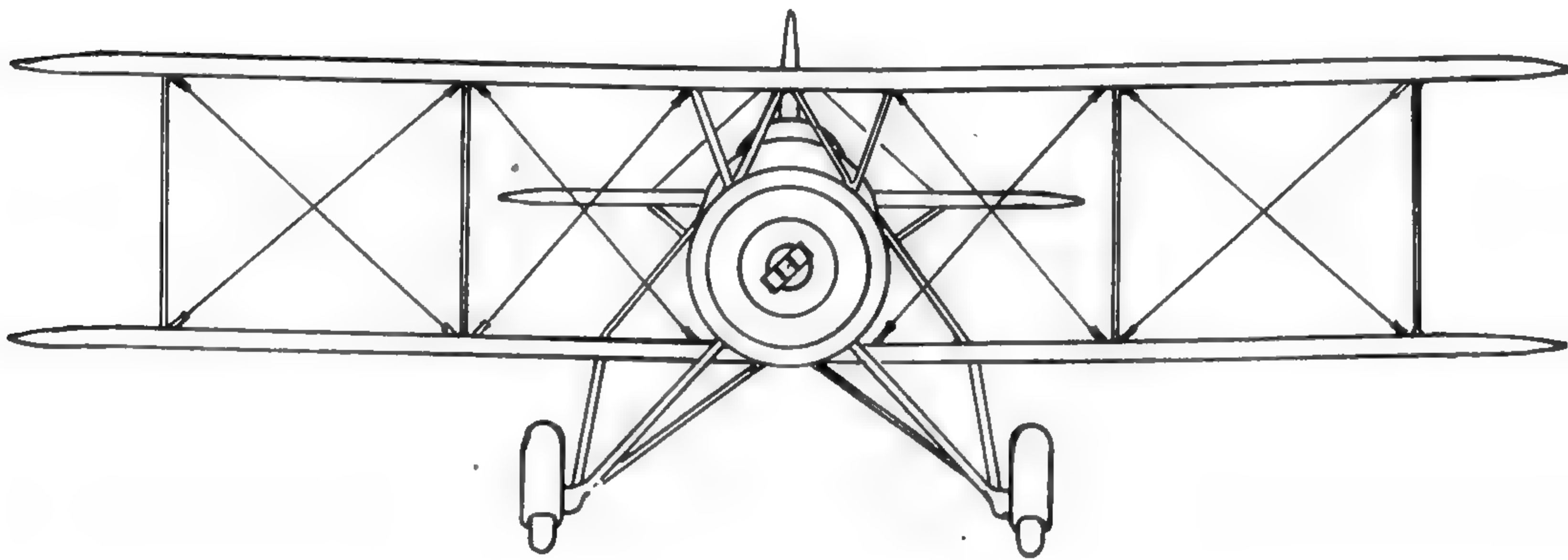
Remarks: Definite information on the model of engine in this aircraft is not available, but it is assumed to be Sakae 21. The performance is based on Buaer's estimated power ratings.

The range figures are computed making allowance for five minutes at rated power for take off and for rated power climb to 3,600 ft.

Tactical Data: Japanese sources describe this aircraft as an "Army, Headquarters Reconnaissance Plane." It is probable that a fighter version of this aircraft is also in use.

AICHI TYPE 96 NAVY SINGLE ENGINE DIVE BOMBER

“SUSIE”



AICHI TYPE 96 NAVY SINGLE ENGINE DIVE BOMBER

"SUSIE"

Originally Manufactured by: Aichi

Also manufactured by: Mitsubishi

Crew: Two

Engine: It is believed to be a Hikari Model I., radial, air-cooled

Dimensions: Wing Span 30' 7" Length 37' 4" Height 12' 8"

	Empty	Full Military Load	Extra Fuel
Weights:		5,200 lb.(?)	

Maximum Speed: 200 m. p. h.

Rate of Climb: 9,840 ft. in 5 min., 56 sec.

Service Ceiling: 23,000 ft.

RANGE

	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U.S. Gal.
Normal:	500	120 m. p. h.	1 x 550 lb. or 2 x 132 lb.		110
Max. Fuel:					

Radio: Probably long range W/T and R/T on medium and high frequency.

Armour: Nil.

Armament: 1 x 20 mm. cannon (flexible) forward fuselage
2 x 7.7 mm. machine guns (fixed) mainplanes
2 x 7.7 mm. machine guns (flexible) dorsal

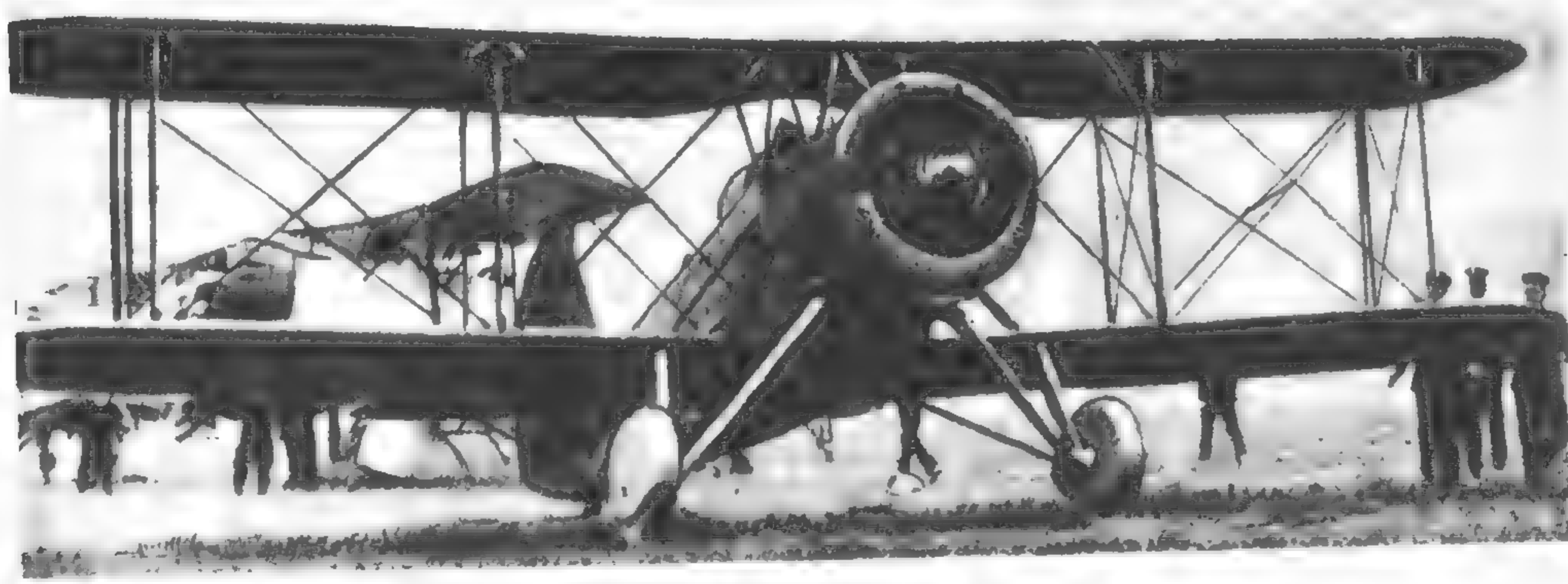
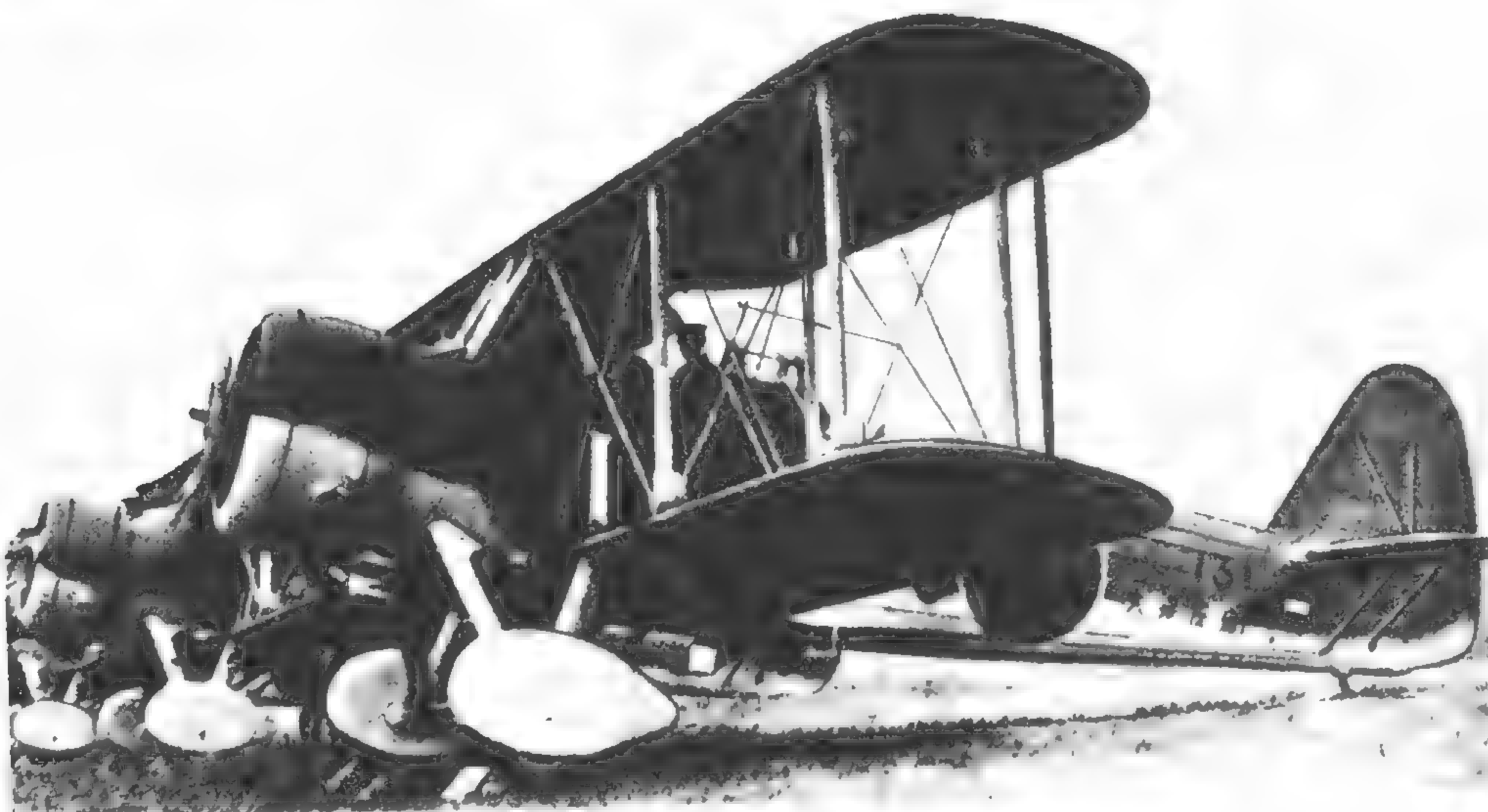
Ammunition:

Vulnerability:

Remarks: It is believed that this plane is the Type 96 carrier based bomber.

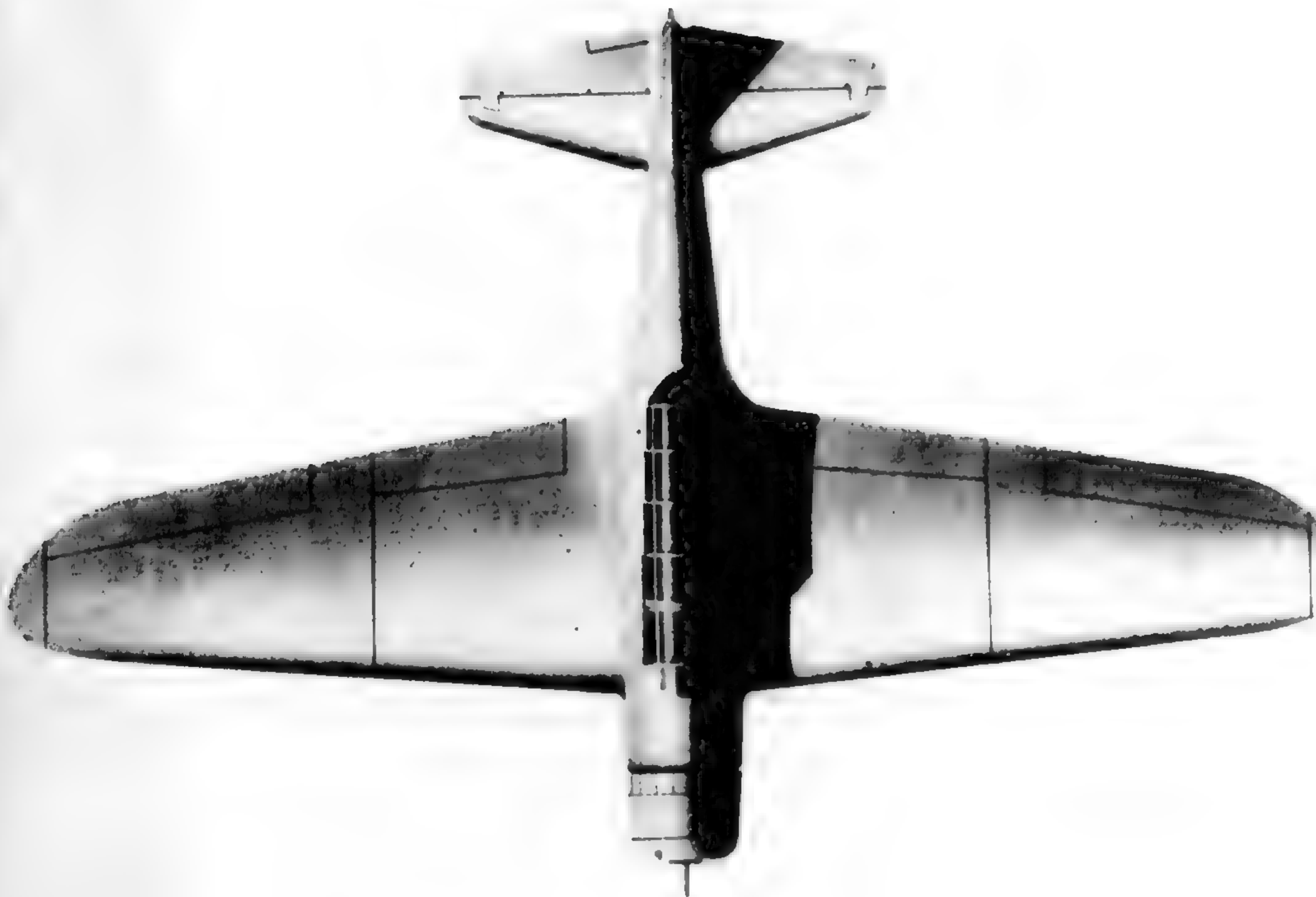
Tactical Data:

AICHI TYPE 96 NAVY SINGLE ENGINE DIVE BOMBER
"SUSIE"



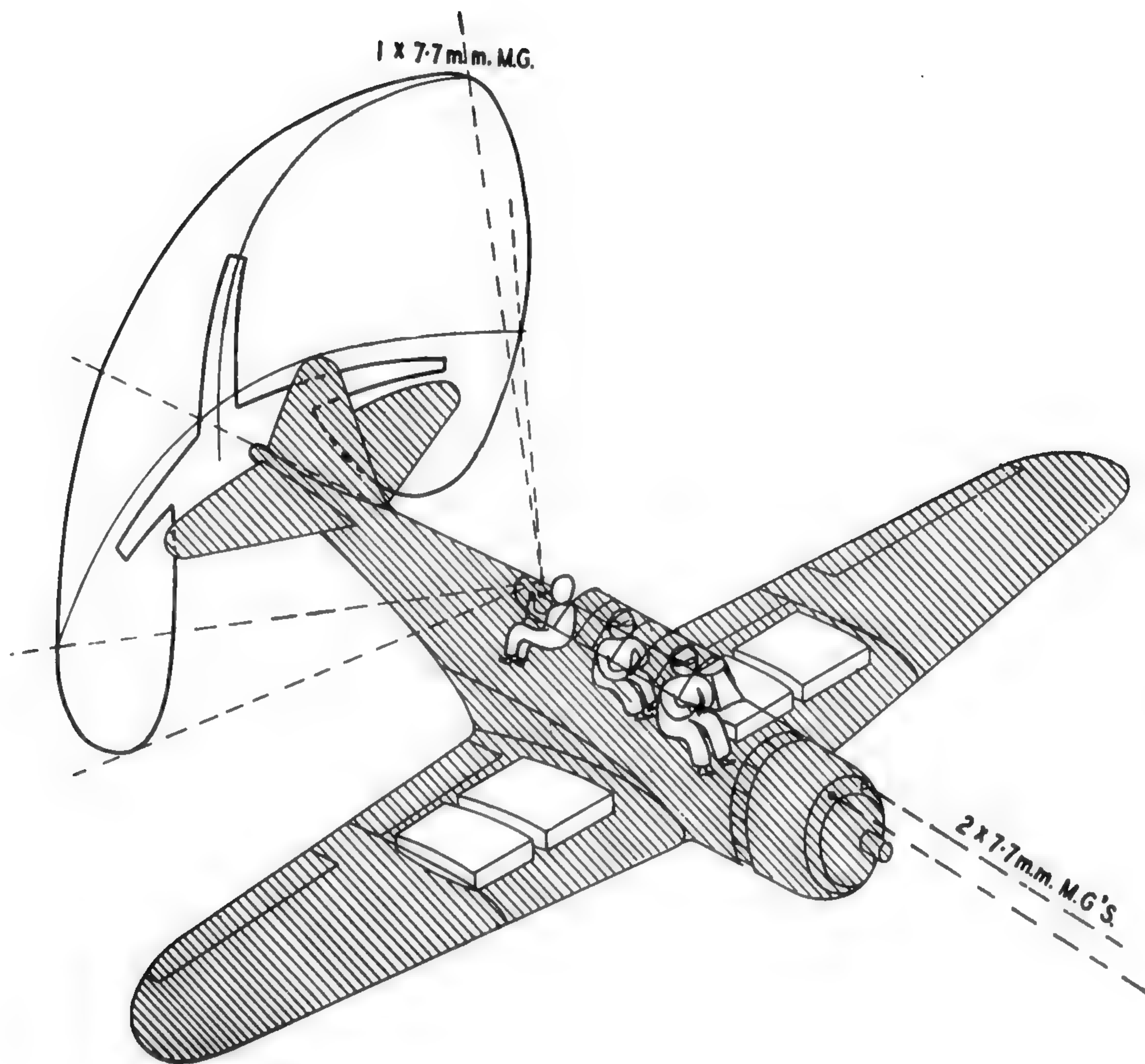
TYPE 97 MARK 3 NAVY SINGLE ENGINE TORPEDO BOMBER

"KATE 3"



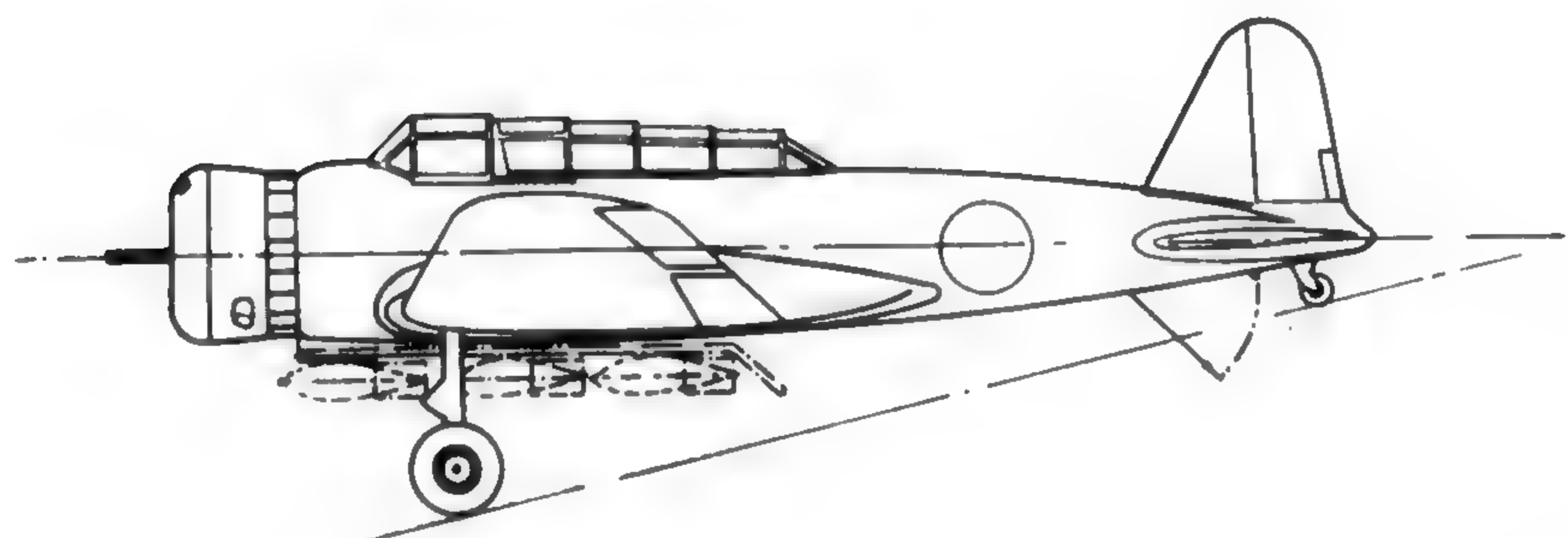
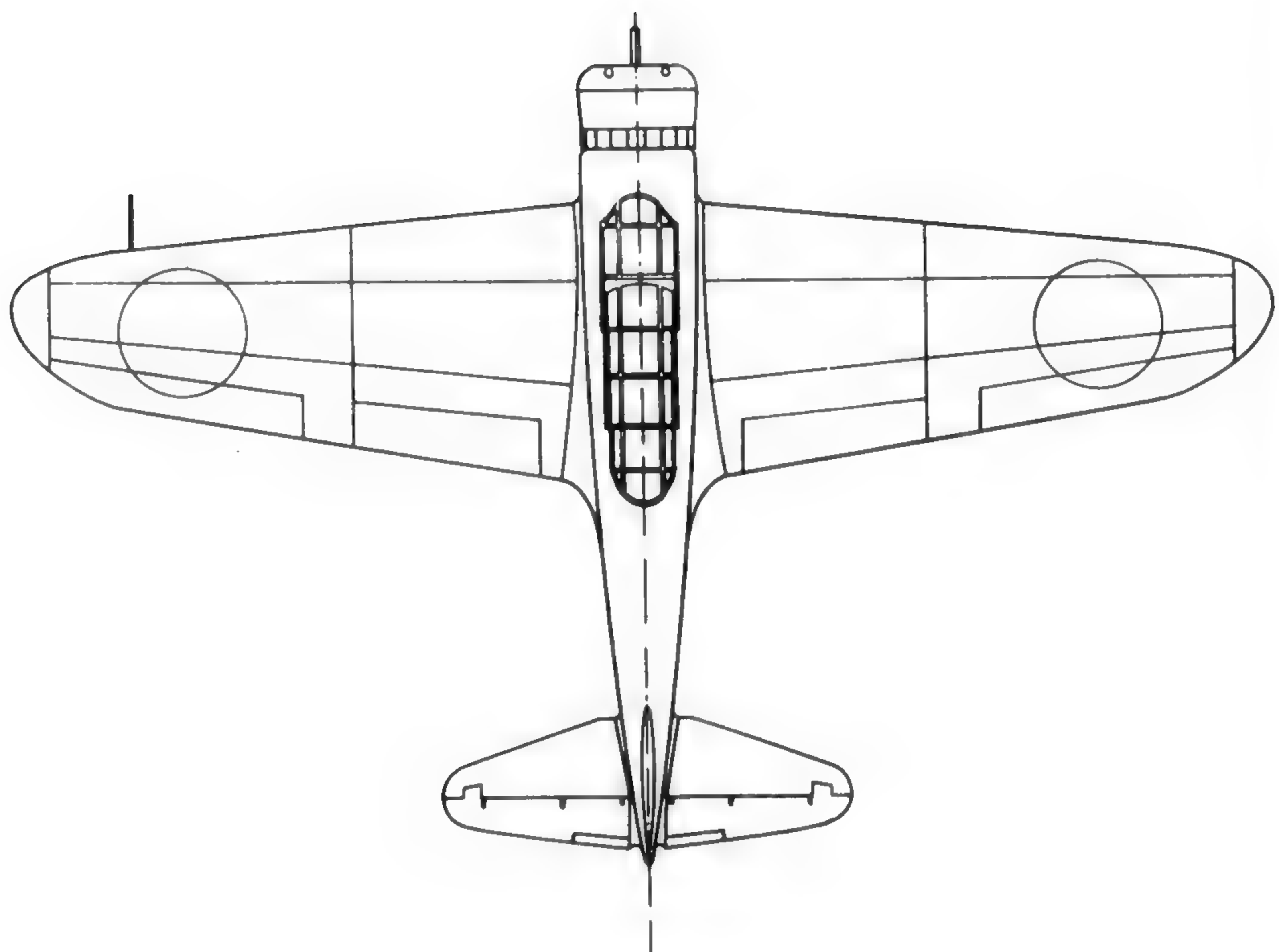
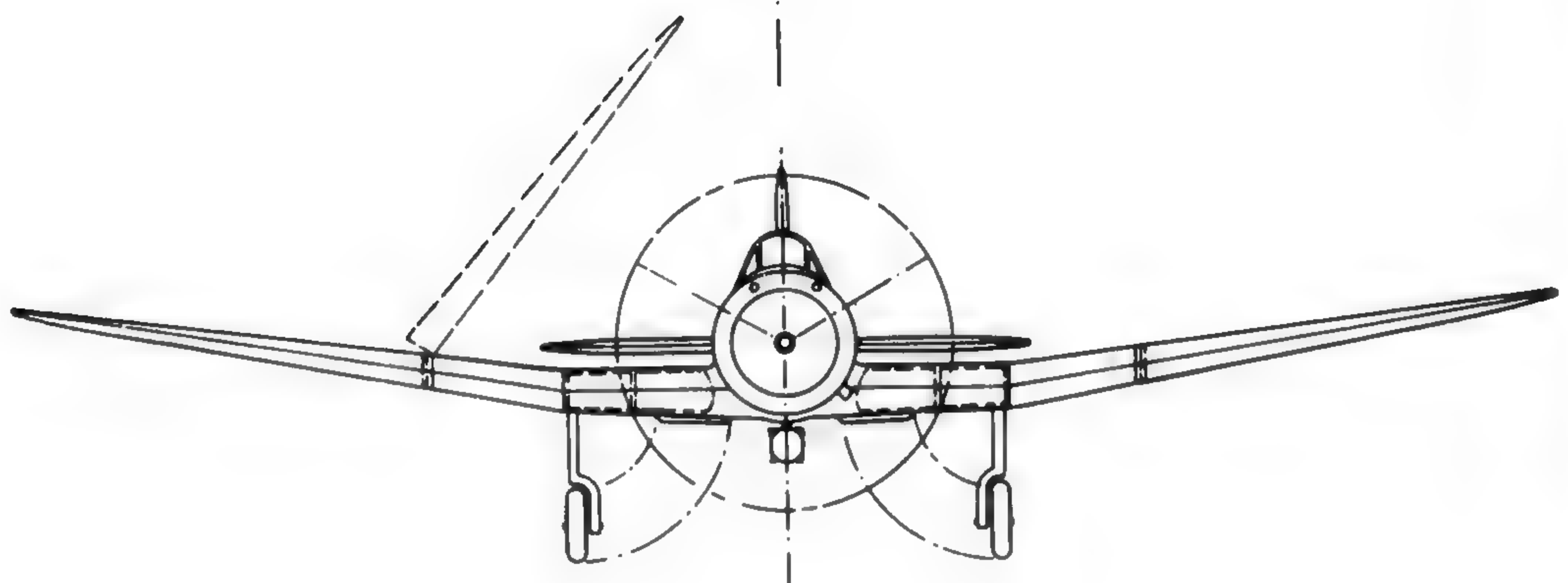
TYPE 97 MARK 3 NAVY SINGLE ENGINE TORPEDO BOMBER

"KATE"



TYPE 97 MARK 1 NAVY SINGLE ENGINE TORPEDO BOMBER

"KATE 1"



TYPE 97 MARK 3 NAVY SINGLE ENGINE TORPEDO BOMBER

"KATE 3"

Originally Manufactured by: Nakajima.

Also Manufactured by: Mitsubishi.

Crew: Two to three.

Engine: One Nakajima, Sakae 11, 14 cylinder, twin-row, aircooled, radial engine, with single speed supercharger. Maximum horsepower ratings:

895 h. p. at sea level.

985 h. p. at 7,500 ft.

Dimensions: Wing span 51' Length 34'6" Height 13'6"
Wing area 415 sq. ft.

	Empty	Normal Torpedo	Normal Bomber	Scout (no bombs)
Weights:	5,439 lbs.	9,946 lbs.	8,731 lbs.	8,834 lbs.

Maximum Speed: Normal Torpedo—199 m. p. h. at sea level.

222 m. p. h. at 8,500 ft.

Scout (no bombs)—202 m. p. h. at sea level.

225 m. p. h. at 8,500 feet.

Rate of Climb: Normal Torpedo—1,100 ft. per min. at sea level.

1,150 ft. per min. at 7,500 ft.

Scout (no bombs)—1,350 ft. per min. at sea level.

1,480 ft. per min. at 7,500 ft.

Service Ceiling: Normal Torpedo—23,800 ft.

Scout (no bombs)—26,100 ft.

RANGE:

Condition	Range Miles	Speed M. P. H.	Altitude Feet	Fuel U. S. Gal.
Normal Torpedo, 90% Vm.	700	200	7,500	290
Normal Torpedo, Max. Range	1,405	131	7,500	290
Scout (no bombs), 90% Vm.	1,000	201	7,500	388
Scout (no bombs), Max. Range	2,155	127	7,500	388

Radio: Two-way W/T.

Armor: None.

Armament: 2 x 7.7 mm. fixed machine guns firing forward above cowling.
1 x 7.7 mm. flexible machine gun in the rear cockpit.

Ammunition: 600 rounds for the fixed guns and 300 rounds for the flexible gun.

Bombs: Normal torpedo carries 1 x 1,760-lb. torpedo. Normal bomber carries 1 x 550-lb. bomb.

Vulnerability: No protection is provided for the crew, fuel tanks or engine.

Remarks: There are three versions of this aircraft which are:

Type 97, Mark 1, equipped with Hikari Model 3.

Type 97, Mark 2, equipped with Kinsei Model 43.

Type 97, Mark 3, equipped with Sakae Model 11.

Range is computed with fuel allowance for five minutes operation at rated take-off power plus rated power climb to 7,500 feet.

Tactical Data:

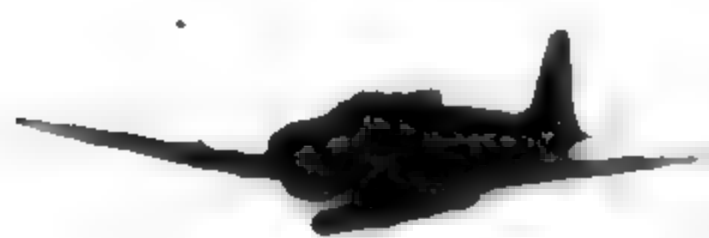
TYPE 97 NAVY SINGLE ENGINE TORPEDO BOMBER

"KATE"

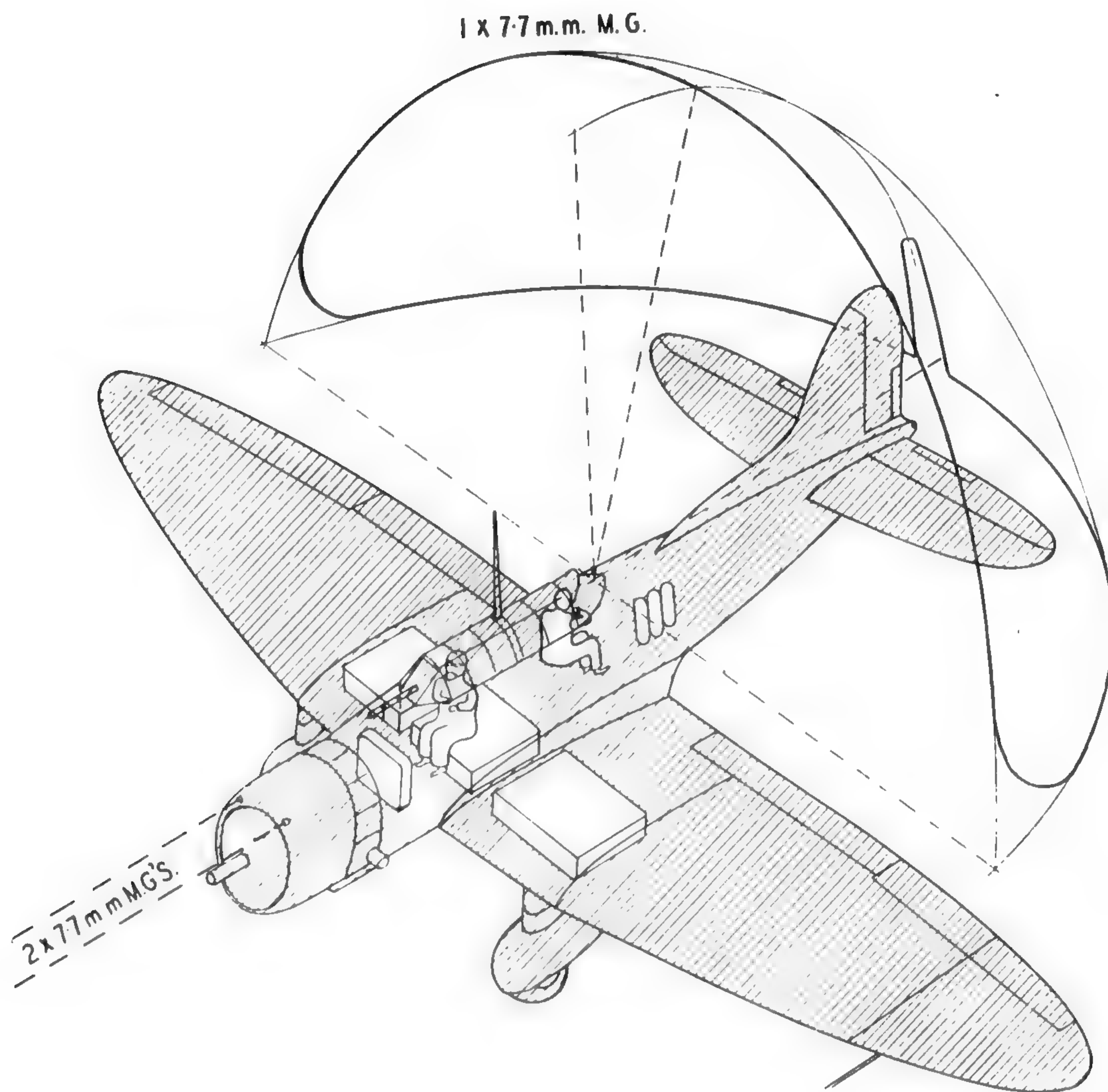
TYPE 97 MARK 1 NAVY SINGLE ENGINE TORPEDO BOMBER



TYPE 97 MARK 3 NAVY SINGLE ENGINE TORPEDO BOMBER

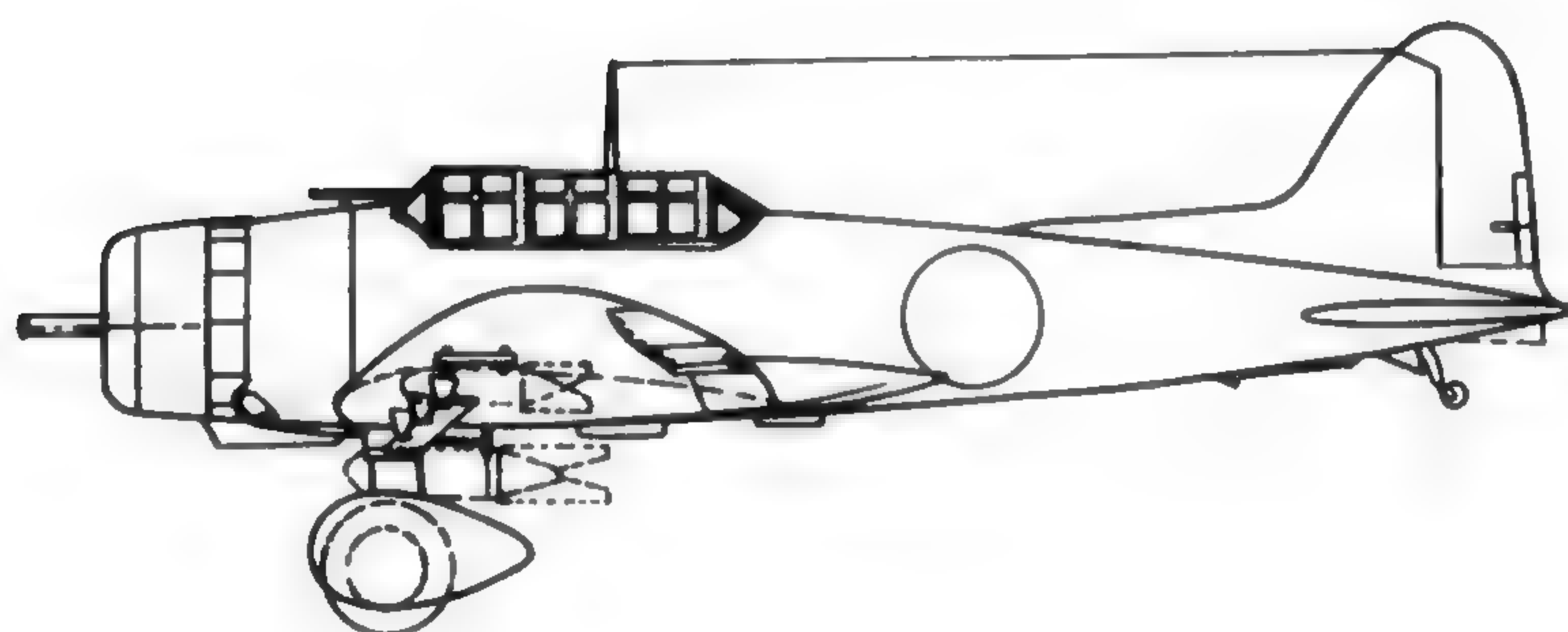
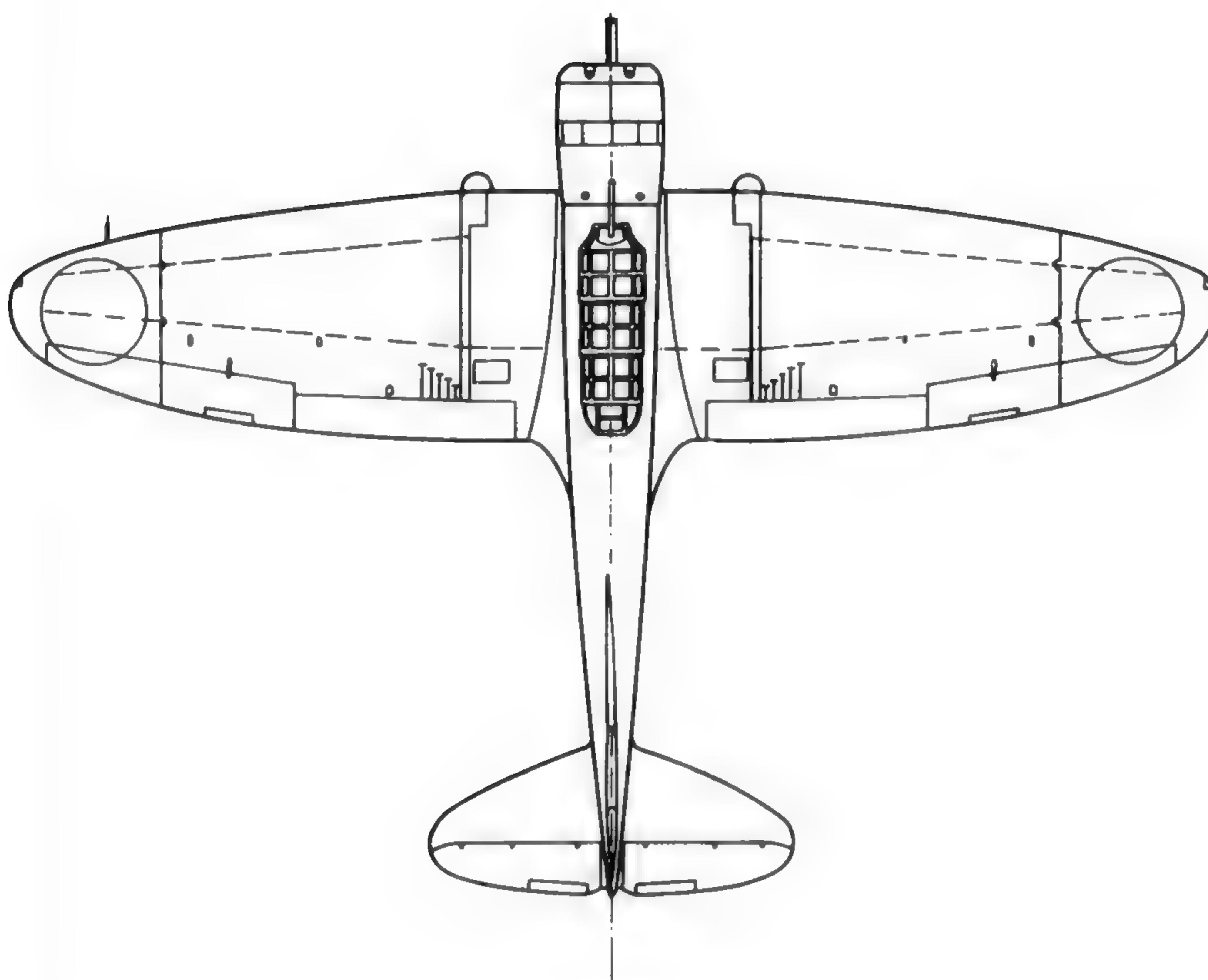
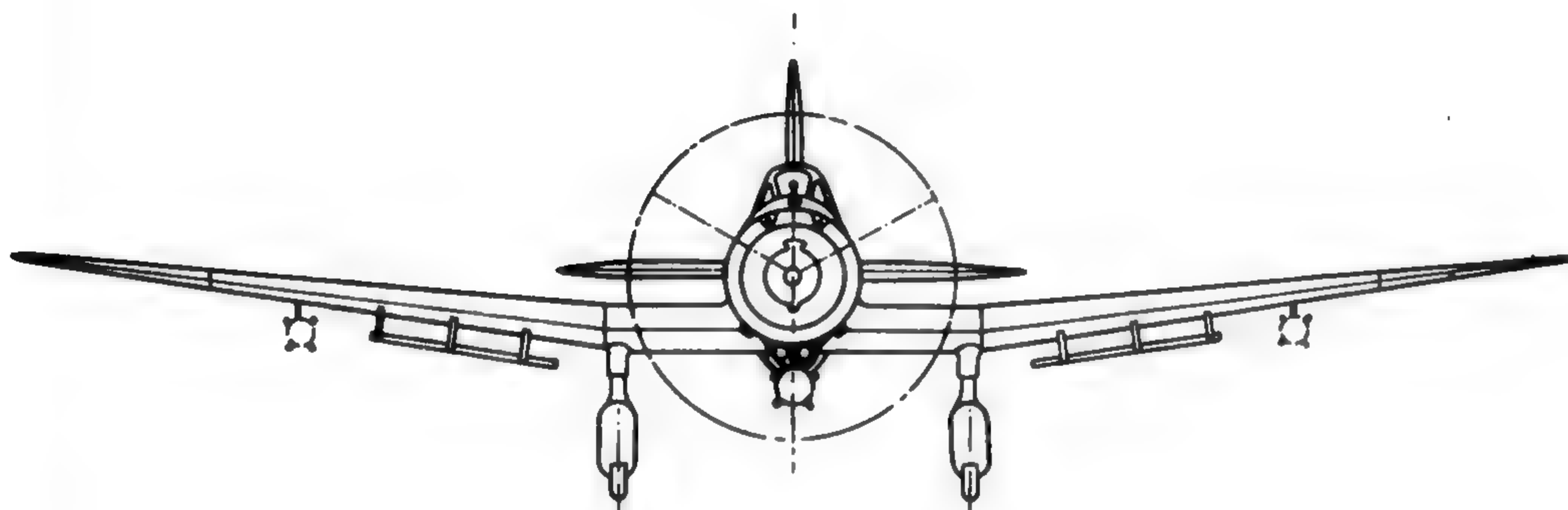


TYPE 99 MARK 1 NAVY SINGLE ENGINE DIVE BOMBER
"VAL 1"

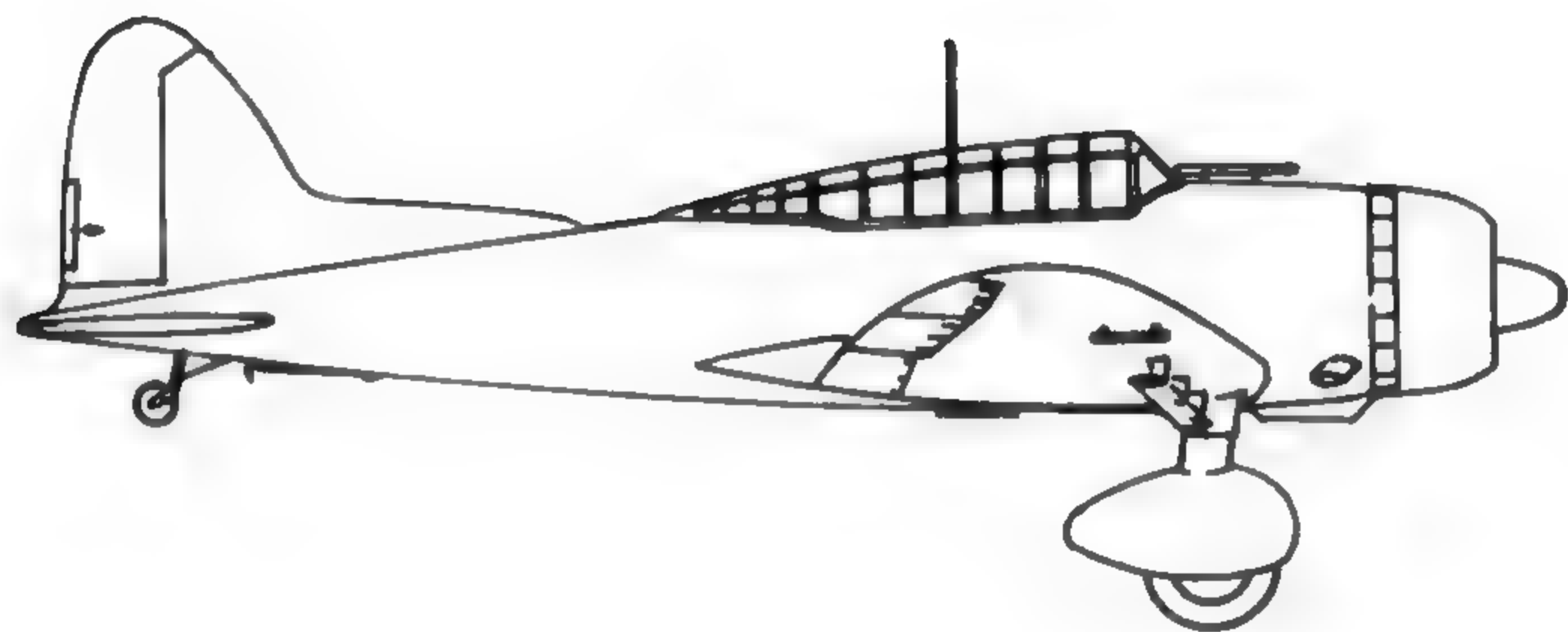
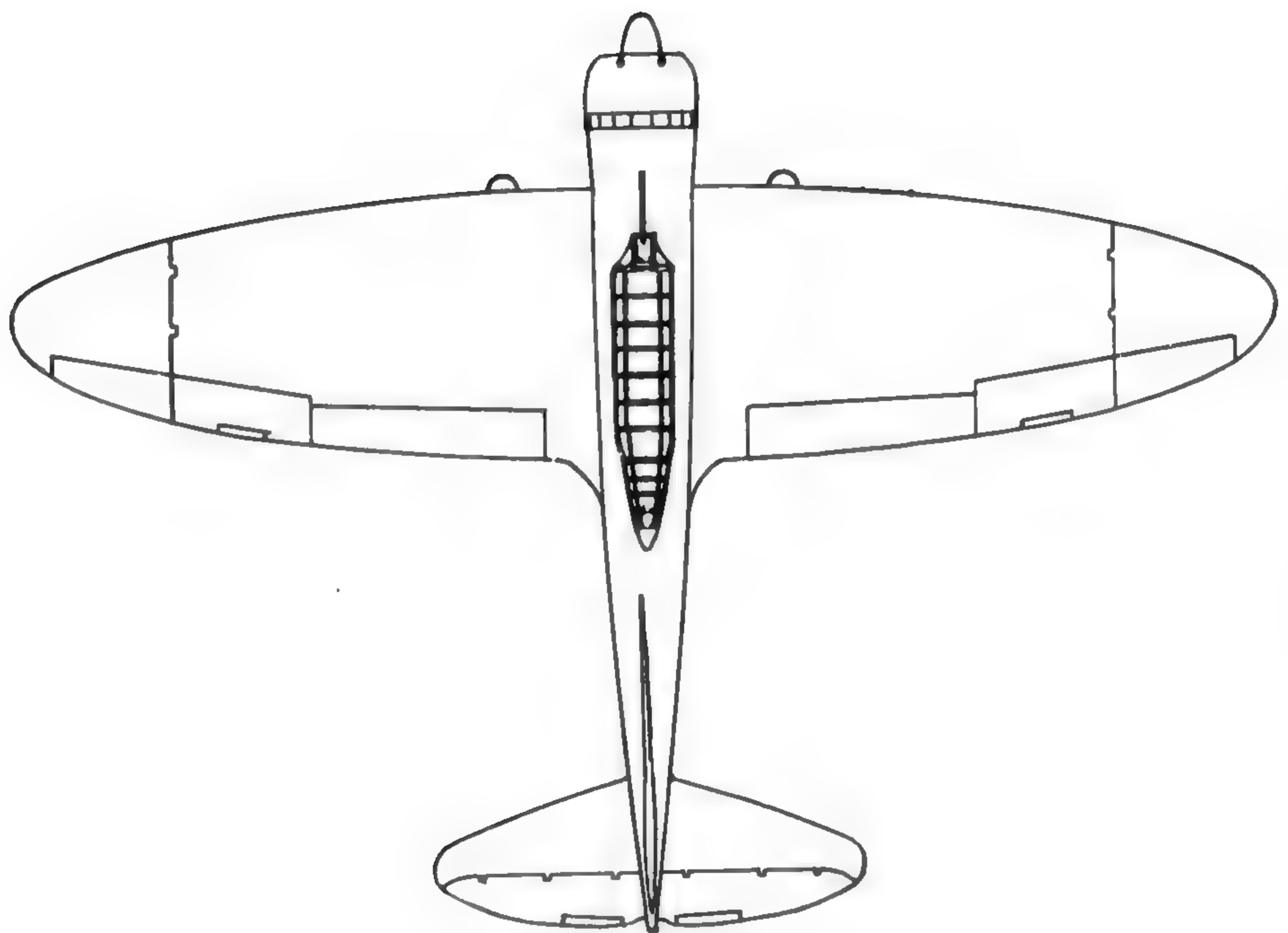
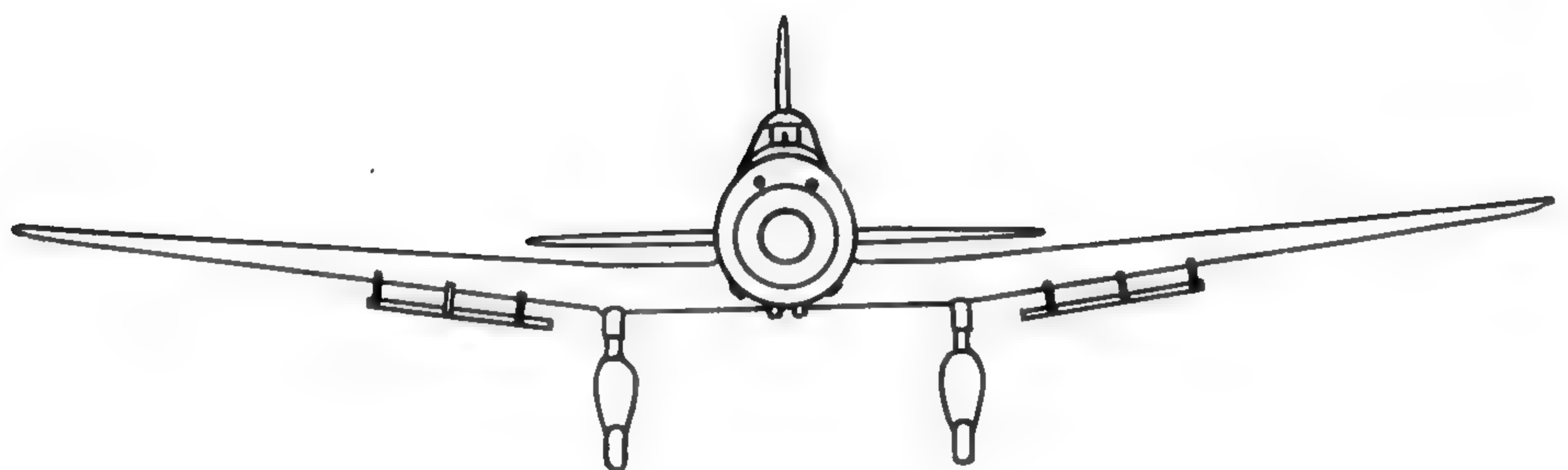


TYPE 99 NAVY SINGLE ENGINE DIVE BOMBER

“VAL”



TYPE 99 MARK 2 NAVY SINGLE ENGINE DIVE BOMBER
"VAL 2"



TYPE 99 MARK 1 NAVY SINGLE ENGINE DIVE BOMBER

"VAL 1"

Originally Manufactured by: Aichi

Also Manufactured by:

Crew: Two.

Engine: One Kinsei 44, 14 cylinder, twin row, air cooled, radial engine.
Single speed supercharger. Maximum rating: 1,000 h. p. at
take off. 1,060 h. p. at 6,500 ft.

Dimensions: Wing span 47' 7 $\frac{3}{4}$ " Length 32' 10 $\frac{1}{2}$ " excluding propeller.
Height 10' 5" Wing area 370.5 sq. ft.

	Empty	Normal Load	Normal Bomb Load
Weights:	5,277 lbs.	8,828 lbs.	1,050 lbs.

Maximum Speed: 241 m. p. h. at 7,700 ft., with normal bomb load.
255 m. p. h. at 7,700 ft., without bombs.

Rate of Climb: 1,650 ft. per min. at sea level.
1,740 ft. per min. at 6,500 ft.

Service Ceiling: 27,200 ft.

RANGE:

Condition	Miles	Speed M. P. H.	Altitude Feet	Fuel U. S. Gal.
Normal load, 90% Vm.	660	214	6,500	265
Normal load, Max. Range	1,440	135	6,500	265

Radio: Two-way W/T.

Armor: None.

Armament: 2 x 7.7 mm. machine guns forward, firing through the airscrew.
1 x 7.7 mm. machine gun, flexible, in rear cockpit.

Ammunition: 600 rounds for each gun.

Bombs: The normal bomb load is 1 x 550-lb. bomb under the fuselage
and 2 x 250-lb. bombs under the wings. An alternate bomb load of
1 x 1,000-lb. bomb under the fuselage can be carried.

Vulnerability: Fuel tanks are not self-sealing and are located in the fuselage,
beneath the floor of the front cockpit, and in the wings, between the
spars and on each side of the tank in the fuselage.

Remarks: The horsepower estimate is based on a dynamometer test made
in Brisbane on a Kinsei 44. The range is computed with fuel allowance
for 5 minutes operation at rated take off power plus rated power climb
to 6,500 feet.

Tactical Data:

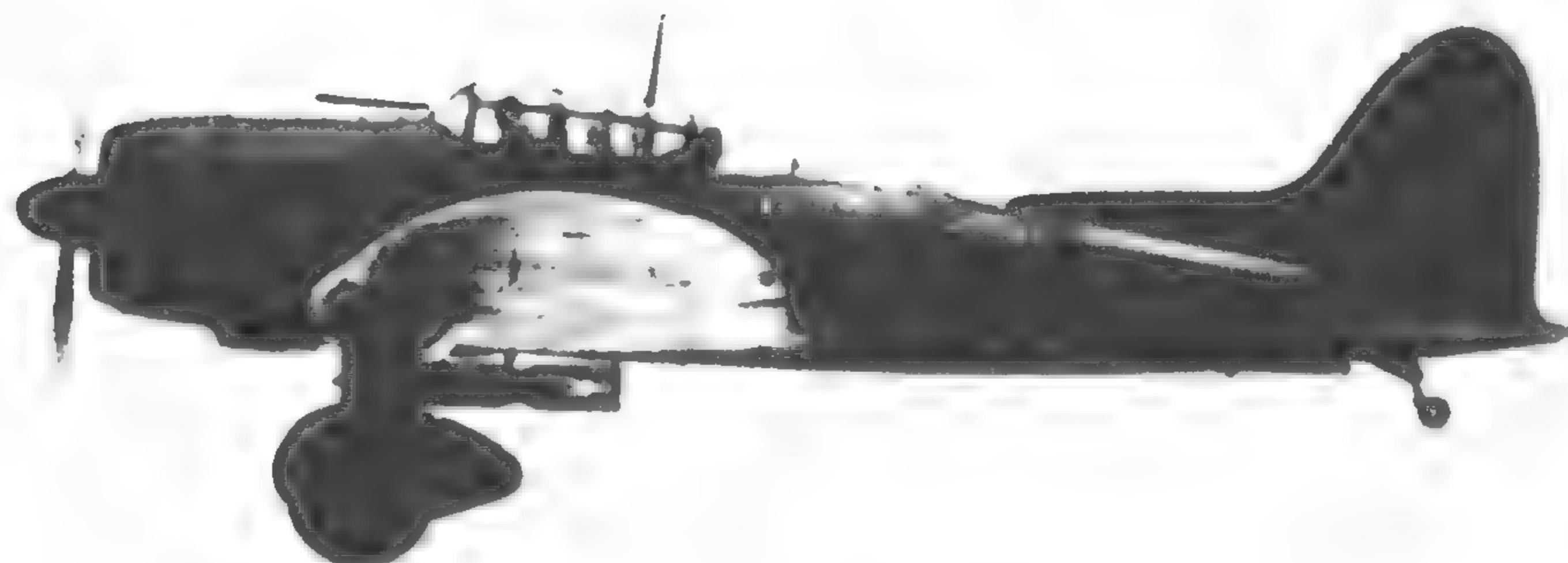
TYPE 99 MARK 1 NAVY SINGLE ENGINE DIVE BOMBER

"VAL 1"



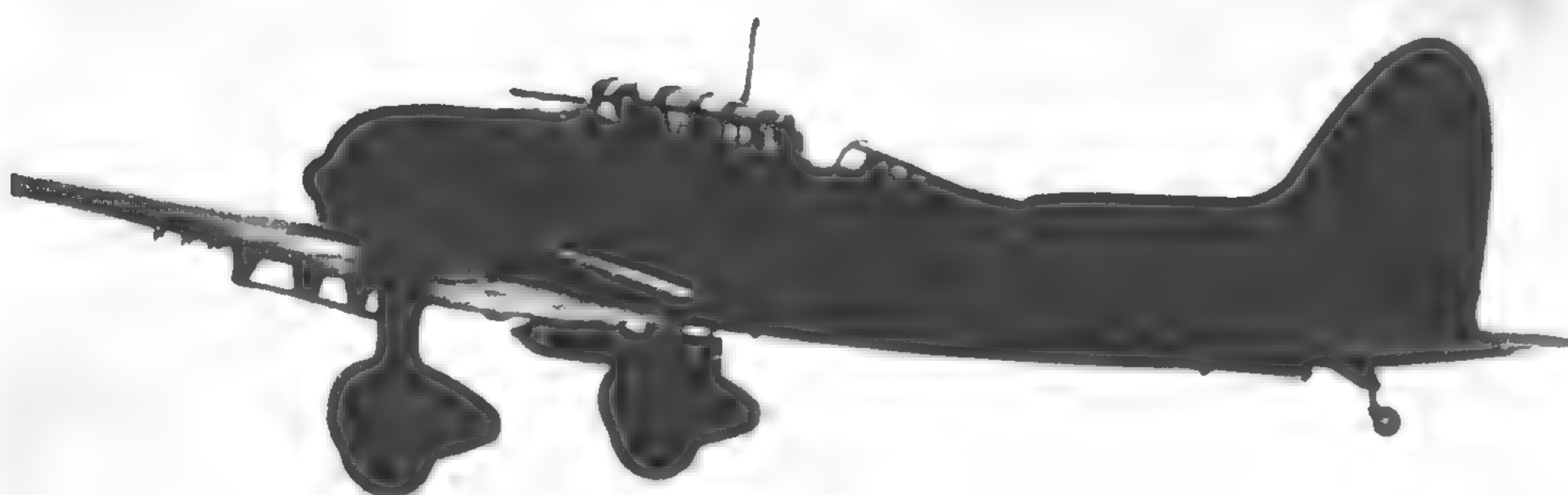
TYPE 99 MARK 2 NAVY SINGLE ENGINE DIVE BOMBER

"VAL 2"



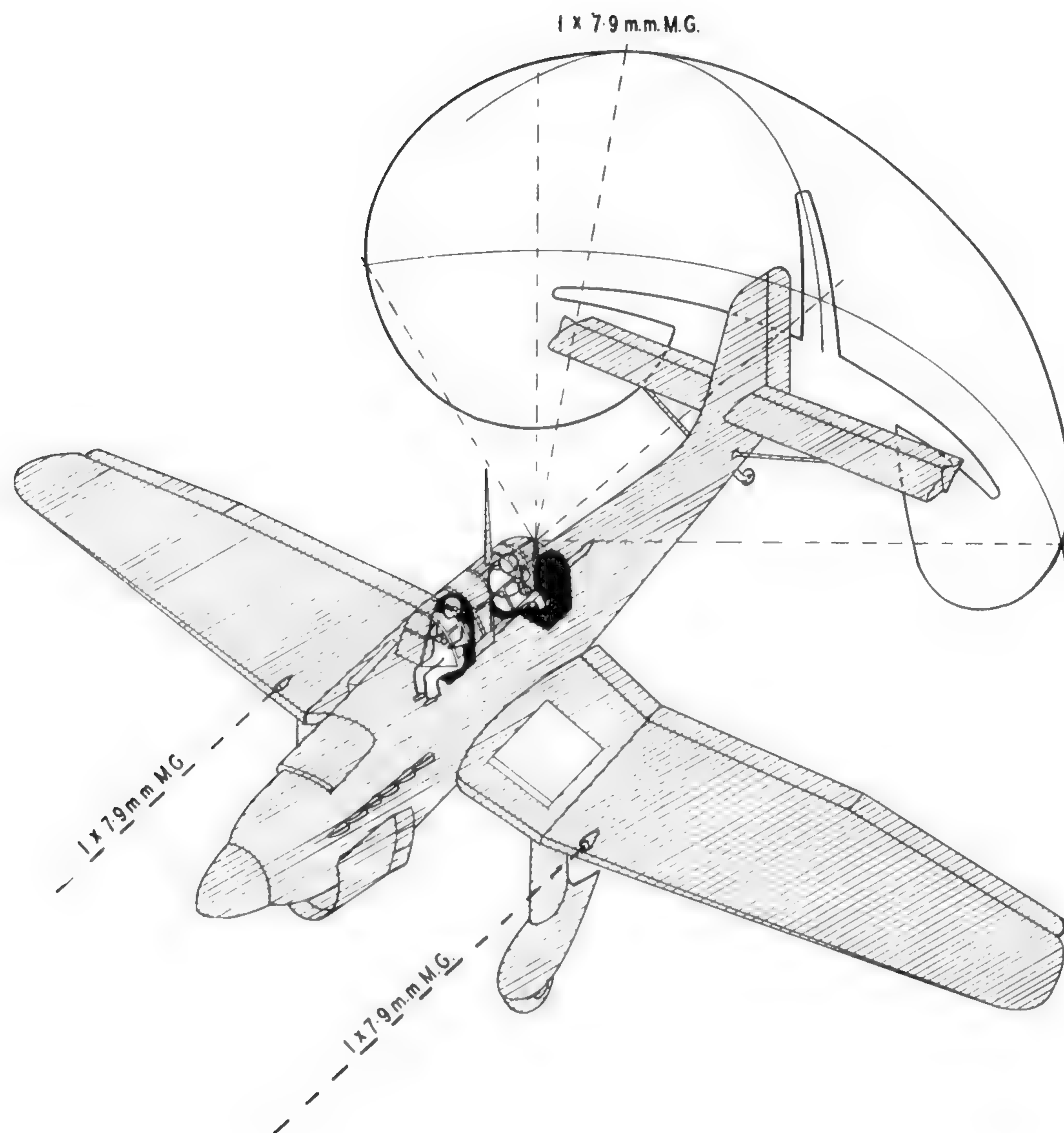
TYPE 99 MARK 2 NAVY SINGLE ENGINE DIVE BOMBER

"VAL 2"



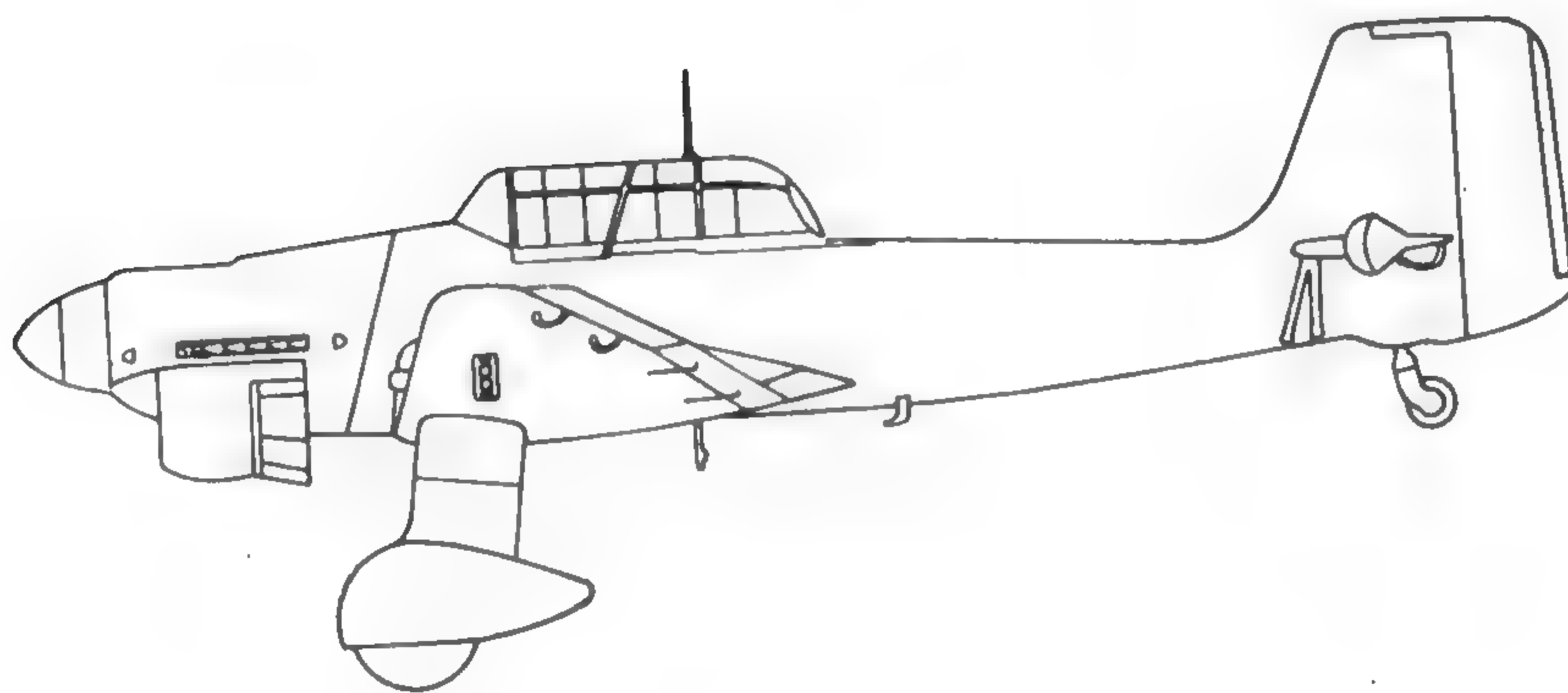
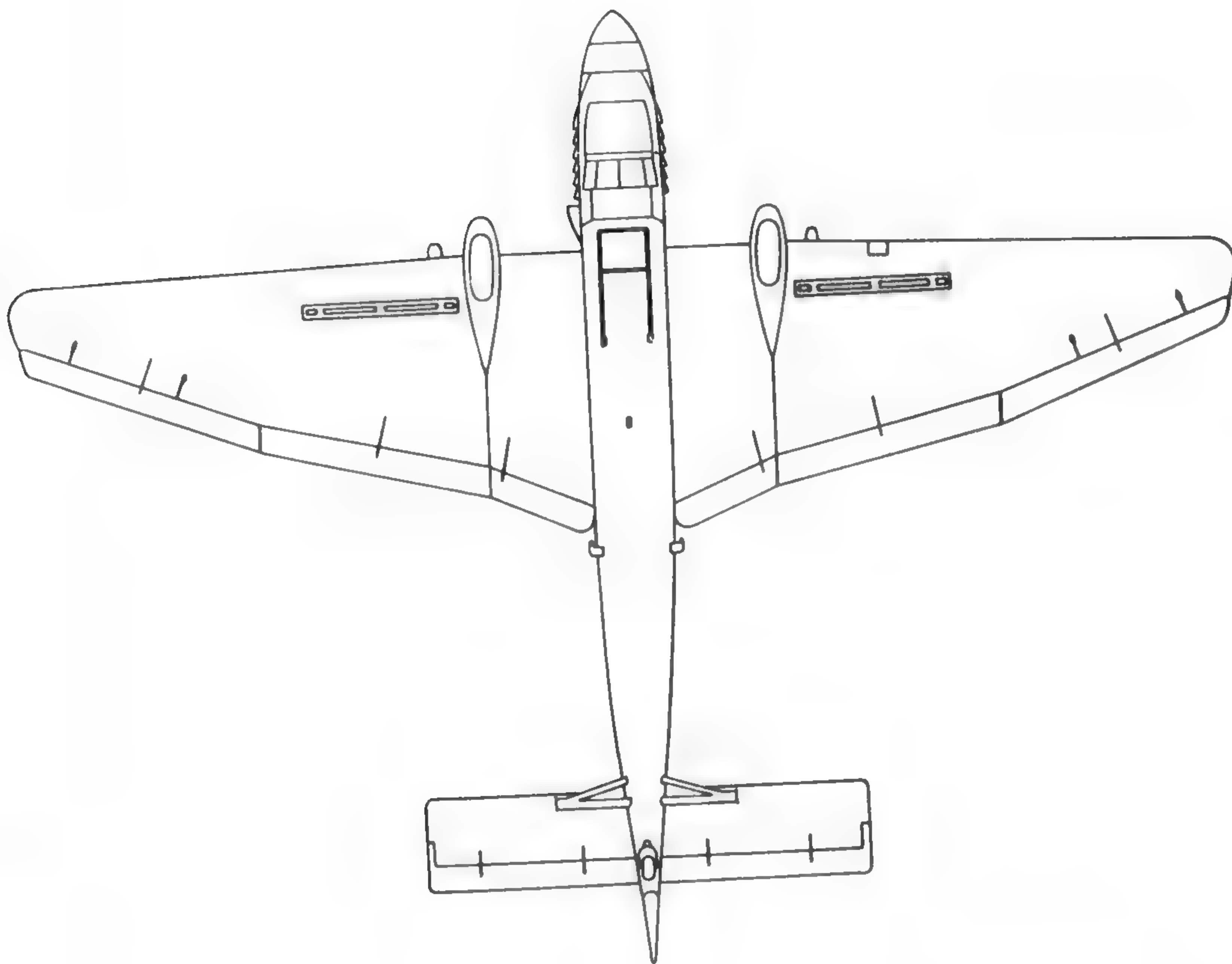
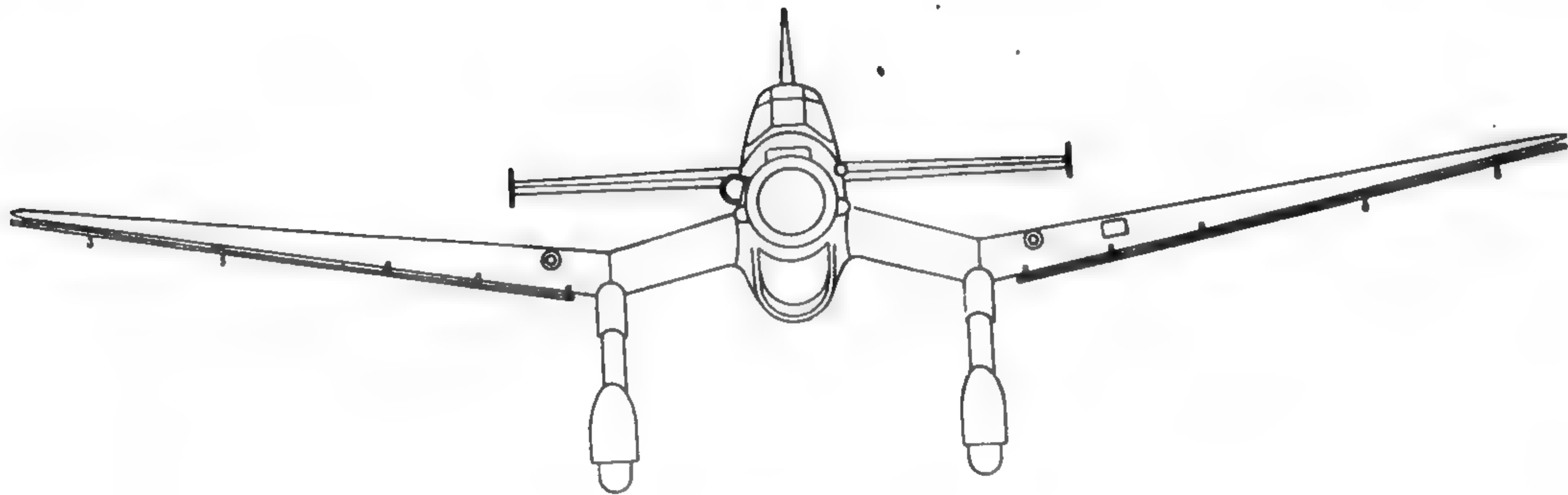
JUNKERS 87B ARMY SINGLE ENGINE DIVE BOMBER

“IRENE”



JUNKERS 87B ARMY SINGLE ENGINE DIVE BOMBER

"IRENE"



JUNKERS 87B ARMY SINGLE ENGINE DIVE BOMBER

"IRENE"

Originally Manufactured by: Junkers

Also Manufactured by: Breda

Crew: Two

Engines: One 12-cylinder inverted "V" liquid-cooled Jumo 211D engine, developing 1,025 h.p. at 12,500 ft.

Dimensions: Wing Span 45' 4" Length 36' 6" Height 13' 0"

	Empty	Normal	Full Military Load
<i>Weights:</i>	7,100lbs.	9,400 lbs.	10,500 lbs.

Maximum Speed: 245 miles per hour at 15,000 ft. (max. emergency)

Rate of Climb:

Service Ceiling: 23,000 ft. start, 30,000 ft. finish.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>	300	200	3,100 lbs.	105	126
<i>Normal</i>	370	215	1,100 lbs.	105	126
<i>Max. Fuel</i>	975	155	1,100 lbs.	238	297

Radio: Transmitter, Receiver, Amplifier and Telephonic intercommunication.

Armour: Pilot's seat and head armour, 8mm.
Dorsal Cross Plate, 8mm.

Armament: 2 x 7.9mm. M.Gs., fixed wings.
1 x 7.9mm. M.G. (flexible).

Ammunition:

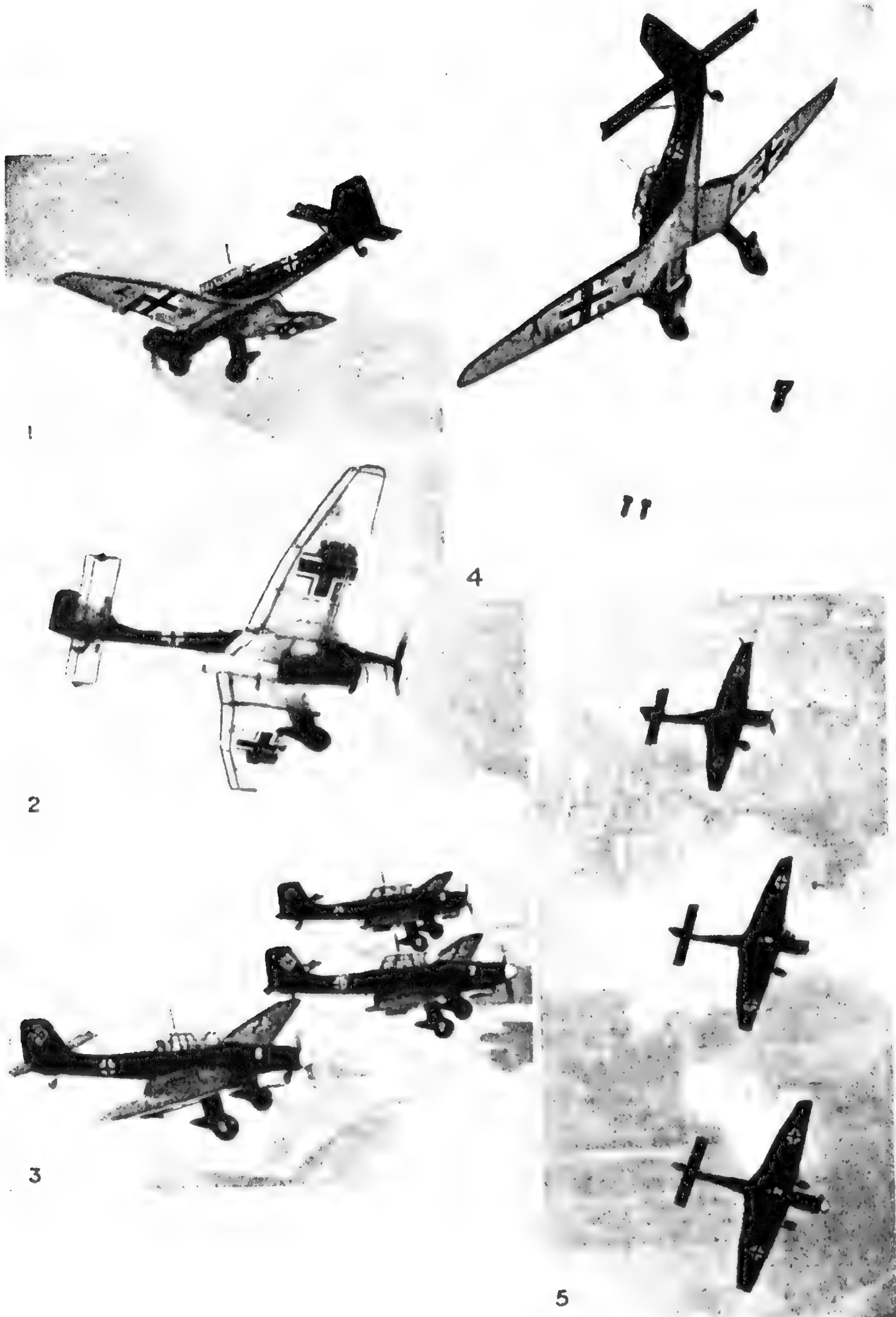
Vulnerability:

Remarks: Maximum speed in dive with brakes, 335 m.p.h. I.A.S. at 4,900 ft. Without brakes, 372 m.p.h. at sea level.
Tanks are self-sealing on German model.

Tactical Data:

JUNKERS 87B ARMY SINGLE ENGINE DIVE BOMBER

"IRENE"



TYPE 99 NAVY SINGLE ENGINE DIVE BOMBER SEAPLANE

"JUNE"

Originally Manufactured by: Aichi.

Also Manufactured by:

Crew: Two.

Engine: One Kinsei, 14 cylinder, twin-row, air cooled, radial engine.
Single speed supercharger. Maximum rating: 1,000 h. p. at
take off, 1,060 h. p. at 6,500 ft.

Dimensions: Wing span 47' 7 $\frac{3}{4}$ " Length (approx.) 33'
Wing area 370.5 sq. ft.

Weights: Empty 5,817 lbs. Normal Bomber 9,368 lbs.

Maximum Speed: 194 m. p. h. at sea level.
213 m. p. h. at 7,700 ft.

Rate of Climb: 1,420 ft. per min. at seal level.
1,500 ft. per min. at 6,500 ft.

Service Ceiling: 25,000 ft.

RANGE:

Condition	Miles	Speed M. P. H.	Altitude Feet	Fuel U. S. Gal.
Normal bomber, 90% Vm.	570	190	6,500	265
Normal bomber, Max. Range	1,180	124	6,500	265

Radio: Two-way W/T.

Armor: None.

Armament: 2 x 7.7 mm. fixed machine guns, mounted on top, forward
cowling, synchronized through the propeller.
1 x 7.7 mm. flexible, dorsal machine gun.

Ammunition: 600 rounds for each gun.

Bombs: The normal bomb load is 1 x 550-lb. bomb under the fuselage and
2 x 250-lb. bombs under the wings. An alternate load of 1 x 1,000-lb.
bomb under the fuselage can be carried.

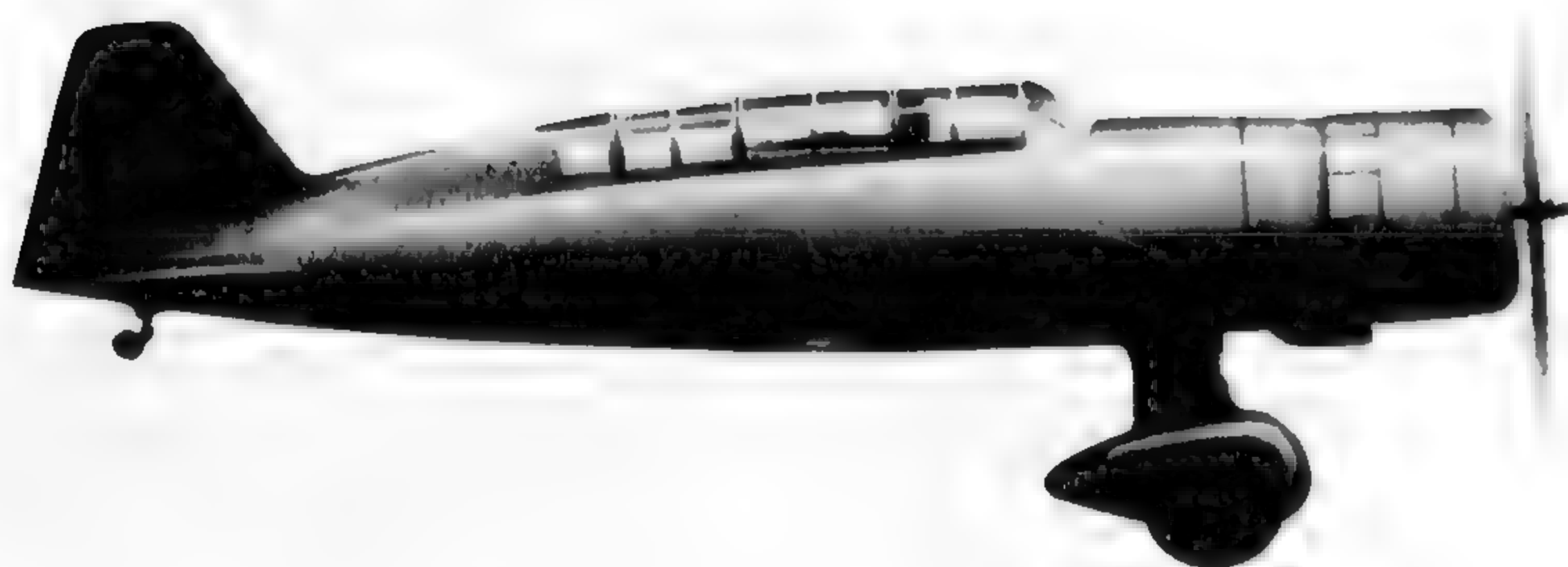
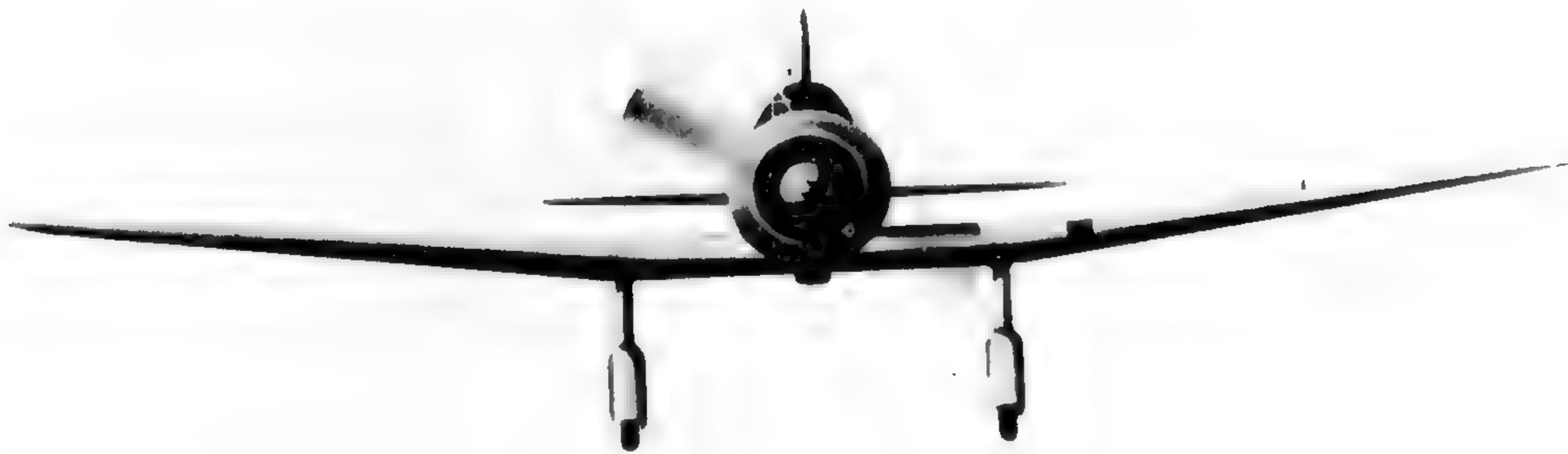
Vulnerability: There is no protection provided for fuel tanks, pilot or
engine.

Remarks: These performance figures are based on the assumption that this
aircraft is VAL mounted on floats. It is also assumed that the float
installation is 22-foot twin-floats of conventional design. The power
rating is based on the Brisbane dynamometer test of Kinsei 44. The
range is computed with fuel allowance for five minutes operation at
rated power for take off plus rated power climb to 6,500 feet.

Tactical Data:

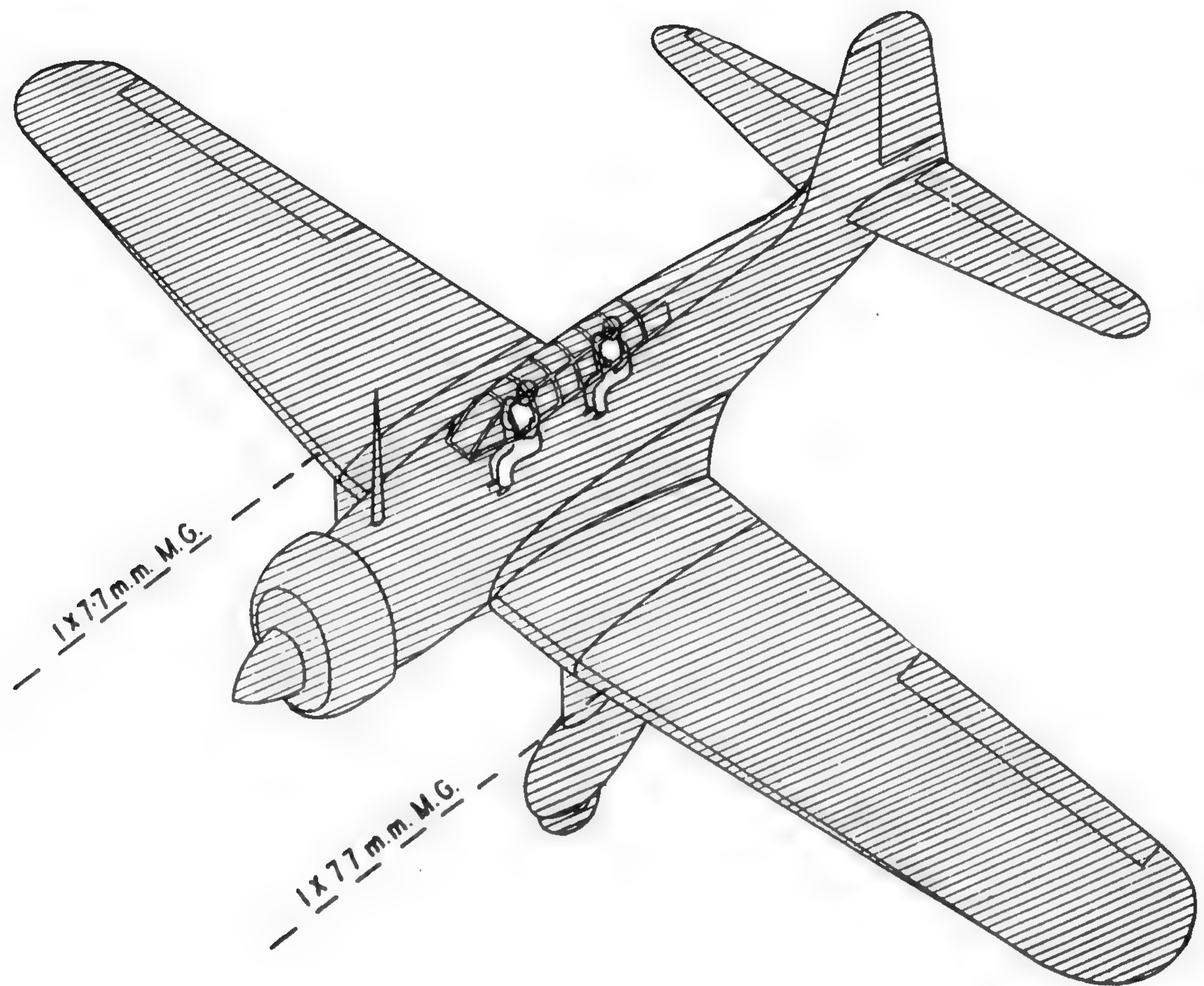
TYPE 97 ARMY SINGLE ENGINE LIGHT BOMBER

“BABS”



TYPE 97 ARMY SINGLE ENGINE LIGHT BOMBER

"BABS"



MITSUBISHI TYPE 97 ARMY SINGLE ENGINE LIGHT BOMBER

“BABS”

Originally Manufactured by: Mitsubishi

Also Manufactured by:

Crew: Two

Engines: One 800 h.p. Kotobuki, radial.

Dimensions: Wing Span 40' Length 28' Height 9' 4"

	Empty	Normal	Full Military Load
<i>Weights:</i>		5,750	

Maximum Speed: 260 miles per hour at 15,000 ft.

Rate of Climb:

Service Ceiling: 30,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>	165	210	1,000	60	72
<i>Normal</i>	450	225	660	100	120
<i>Max. Fuel</i>	1,240	143	Nil	180	217

Radio:

Armour: Nil.

Armament: 2 x 7.7mm. M.Gs., forward wings.

Ammunition:

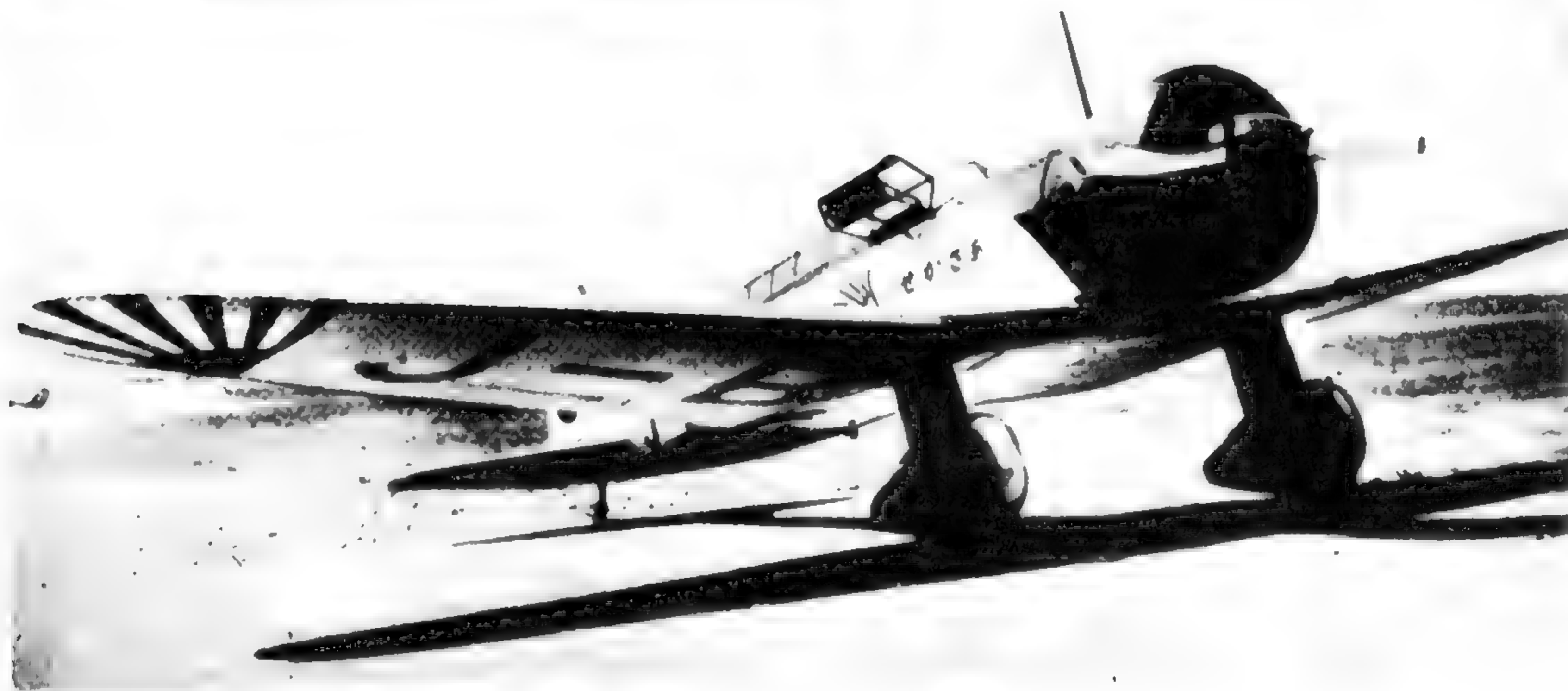
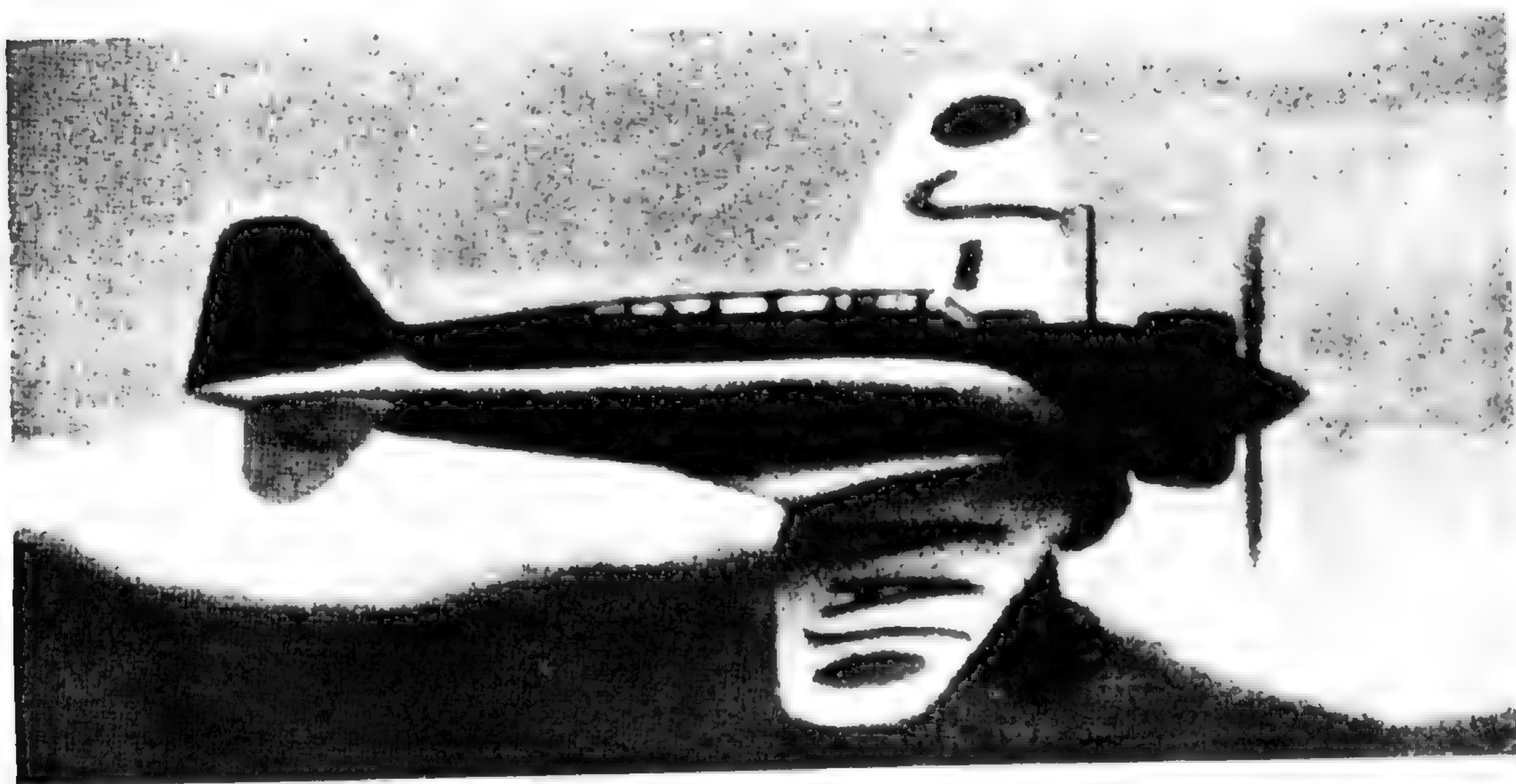
Vulnerability: No self-sealing tanks.

Remarks: May carry 1 x 7.7mm. M.G., dorsal.

Tactical Data:

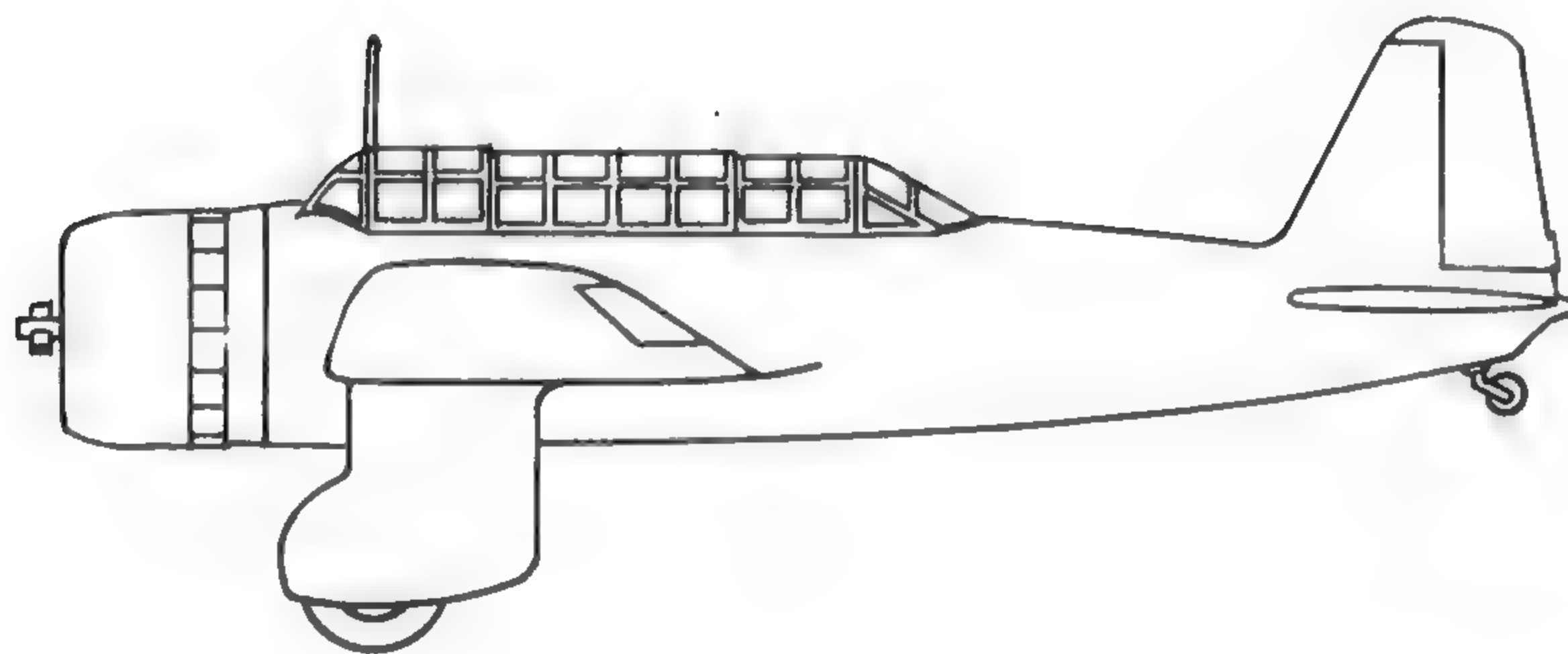
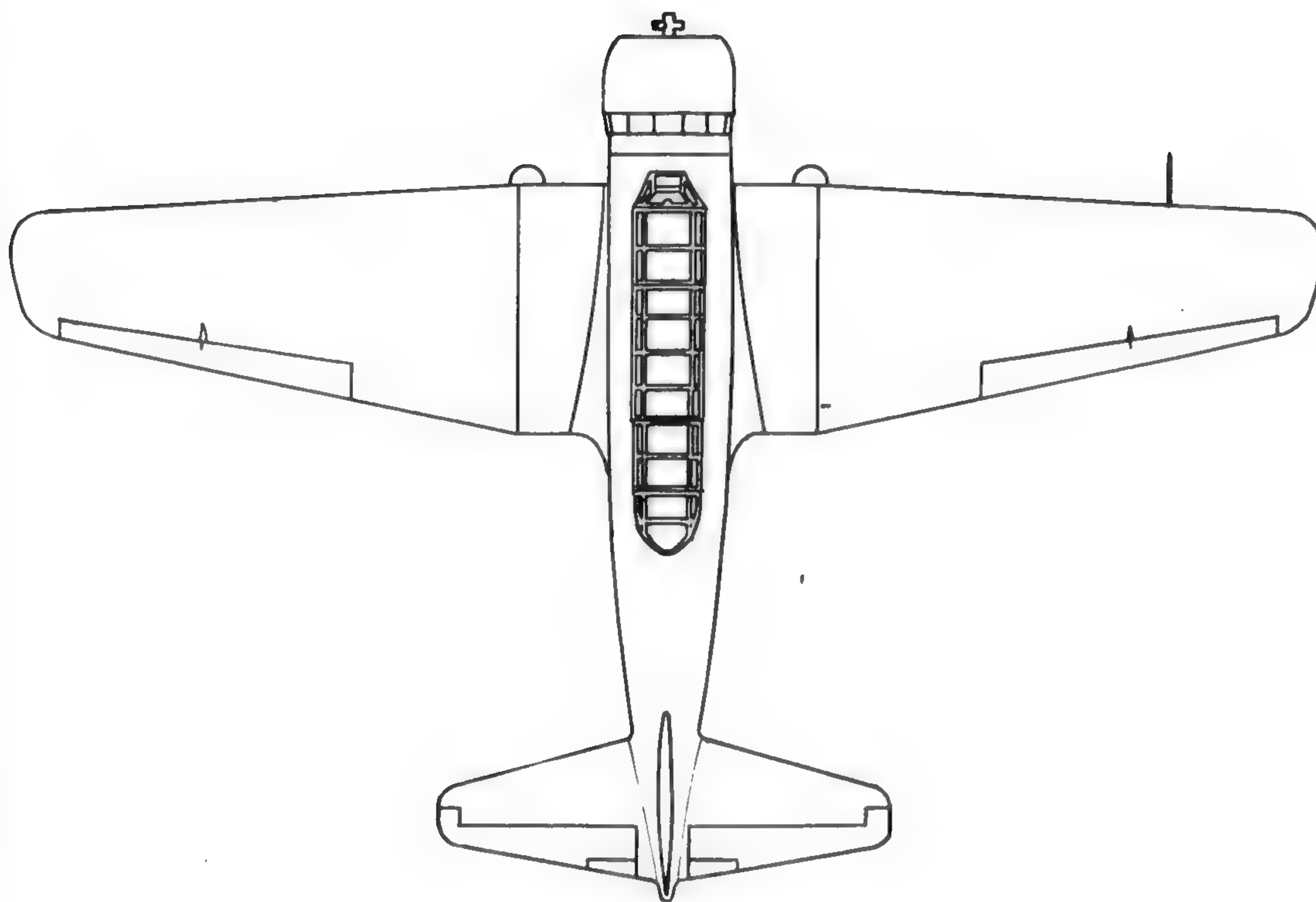
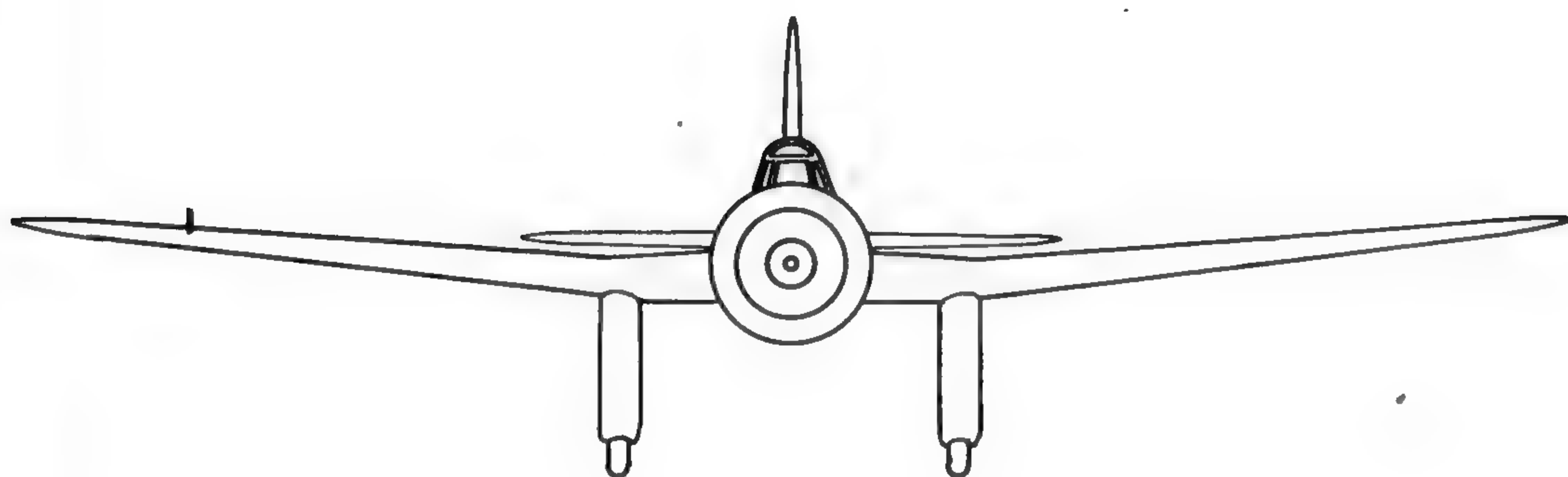
MITSUBISHI TYPE 97 ARMY SINGLE ENGINE LIGHT BOMBER

“BABS”



TYPE 97 SINGLE ENGINE LIGHT BOMBER

"ANN"



TYPE 97 SINGLE ENGINE LIGHT BOMBER

"ANN"

Originally Manufactured by:

Also Manufactured by:

Crew:

Engines: One radial, aircooled engine of unknown type and horsepower.

Dimensions: Wing span 45' Length 31' Height 13' (all approx.)

Empty

Normal

Full Military Load

Weights:

Maximum Speed:

Rate of Climb:

Service Ceiling:

RANGE:

	Range In Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U. S. Gal.
Max. Bombs					
Normal					
Max. Fuel					

Radio:

Armor:

Armament:

Ammunition:

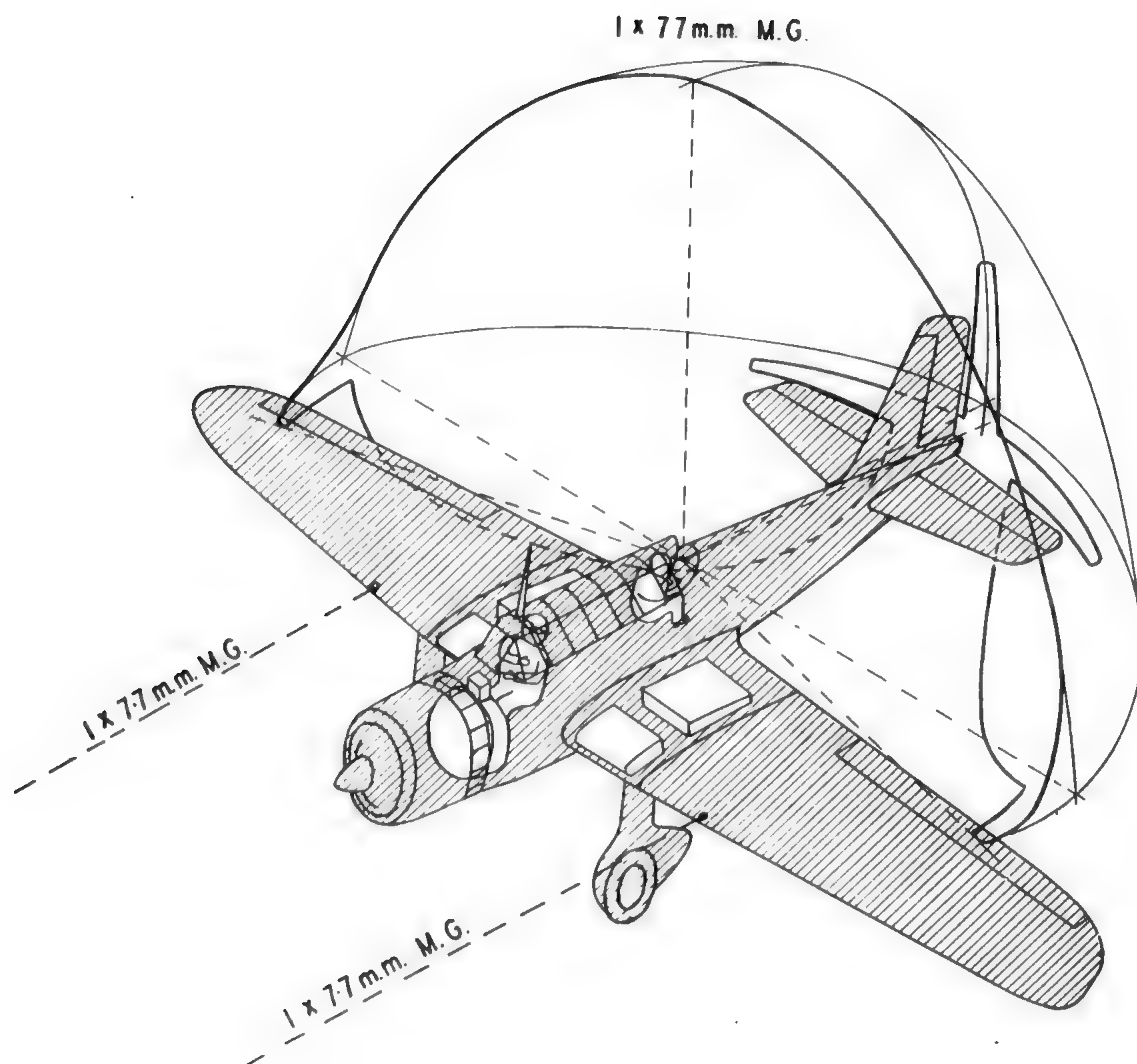
Vulnerability:

Remarks:

Tactical Data:

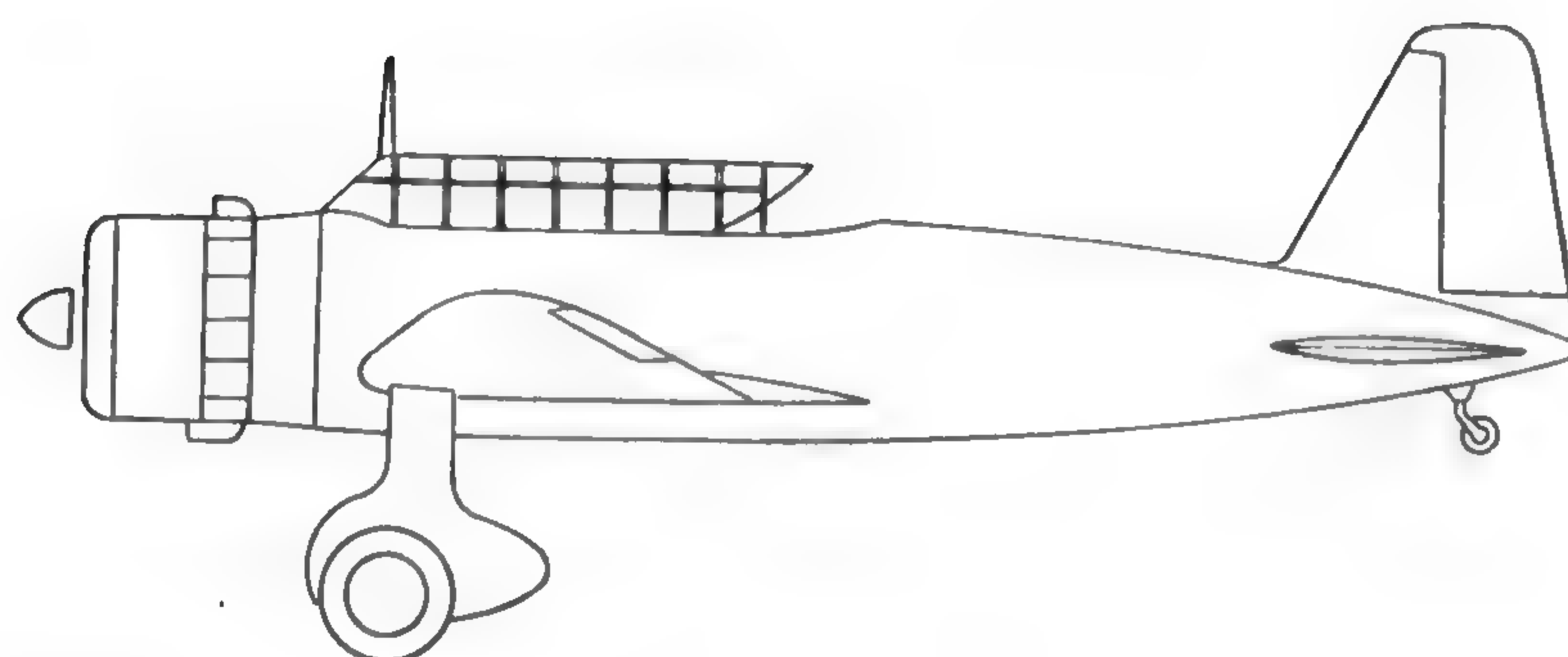
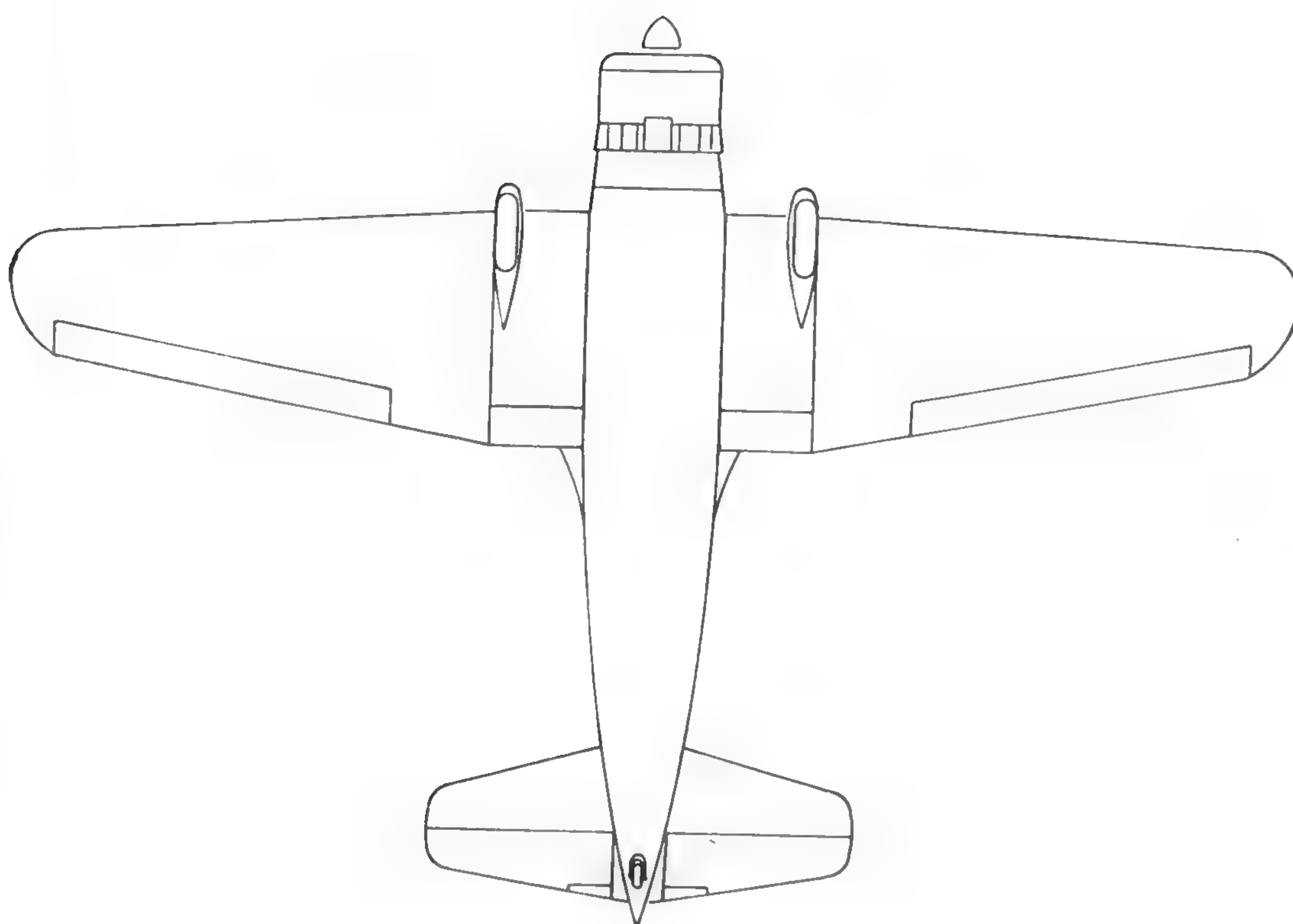
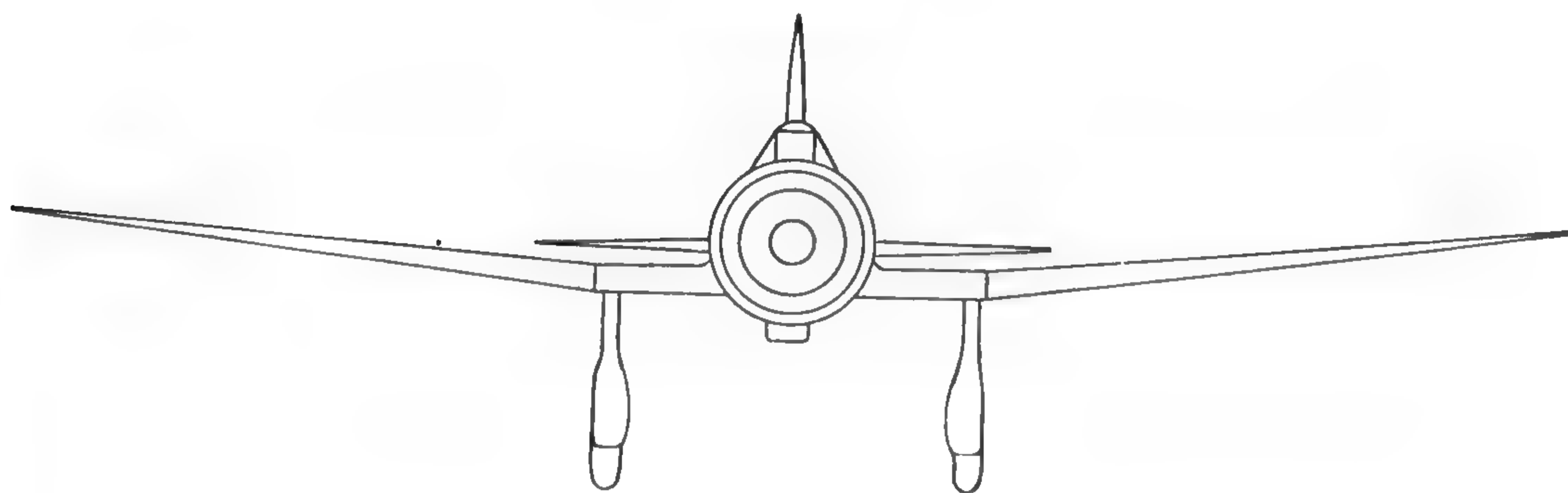
MITSUBISHI TYPE 98 ARMY SINGLE ENGINE LIGHT BOMBER

"SONIA"



MITSUBISHI TYPE 98 ARMY SINGLE ENGINE LIGHT BOMBER

"SONIA"



Change 1

60-10

MITSUBISHI TYPE 98 ARMY SINGLE ENGINE LIGHT BOMBER

“SONIA”

Originally Manufactured by: Mitsubishi

Also Manufactured by:

Crew: Two

Engines: One Kinsei 14-cyl. twin-row radial, developing 900 h.p. at 10,000 ft.

Dimensions: Wing Span 39' 6" Length 27' 11" Height 11' 6"
Empty Normal Full Military Load

Weights:

Maximum Speed: 250 miles per hour.

Rate of Climb:

Service Ceiling: 16,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>			1,000 lbs.		
<i>Normal</i>			650 lbs.		
<i>Max. Fuel</i>					

Radio:

Armour:

Armament: 2 x 7.7mm. M.Gs., fixed forward.
1 x 7.7mm. M.G., flexible dorsal.

Ammunition: 200 rounds per forward gun; 540 rounds per dorsal.

Vulnerability: No self-sealing tanks; petrol tanks may be located in wing roots.

Remarks:

Tactical Data:

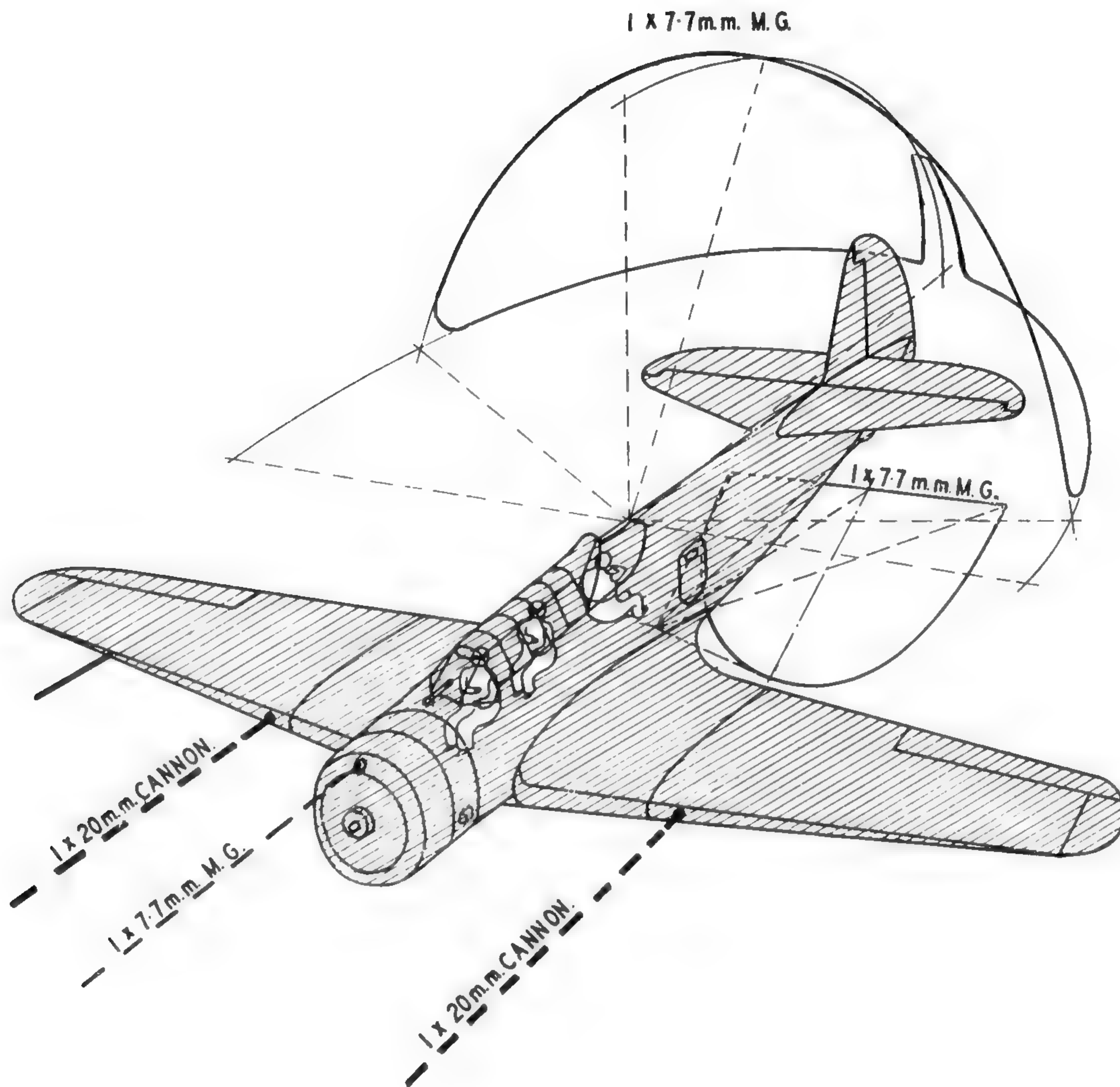
MITSUBISHI TYPE 98 ARMY SINGLE ENGINE LIGHT BOMBER

"SONIA"



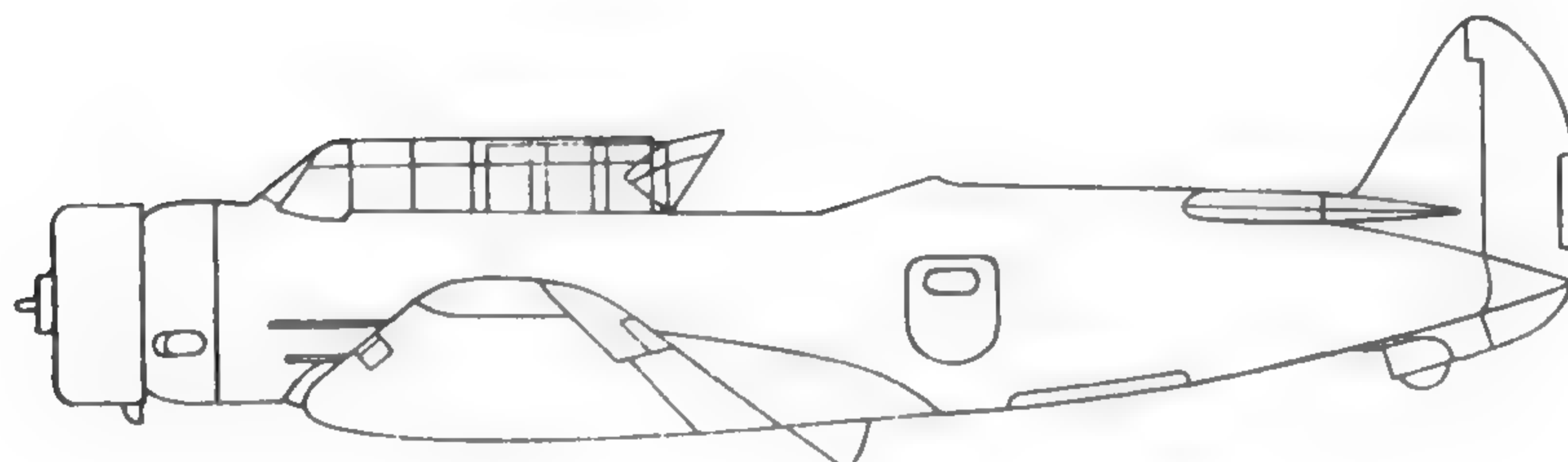
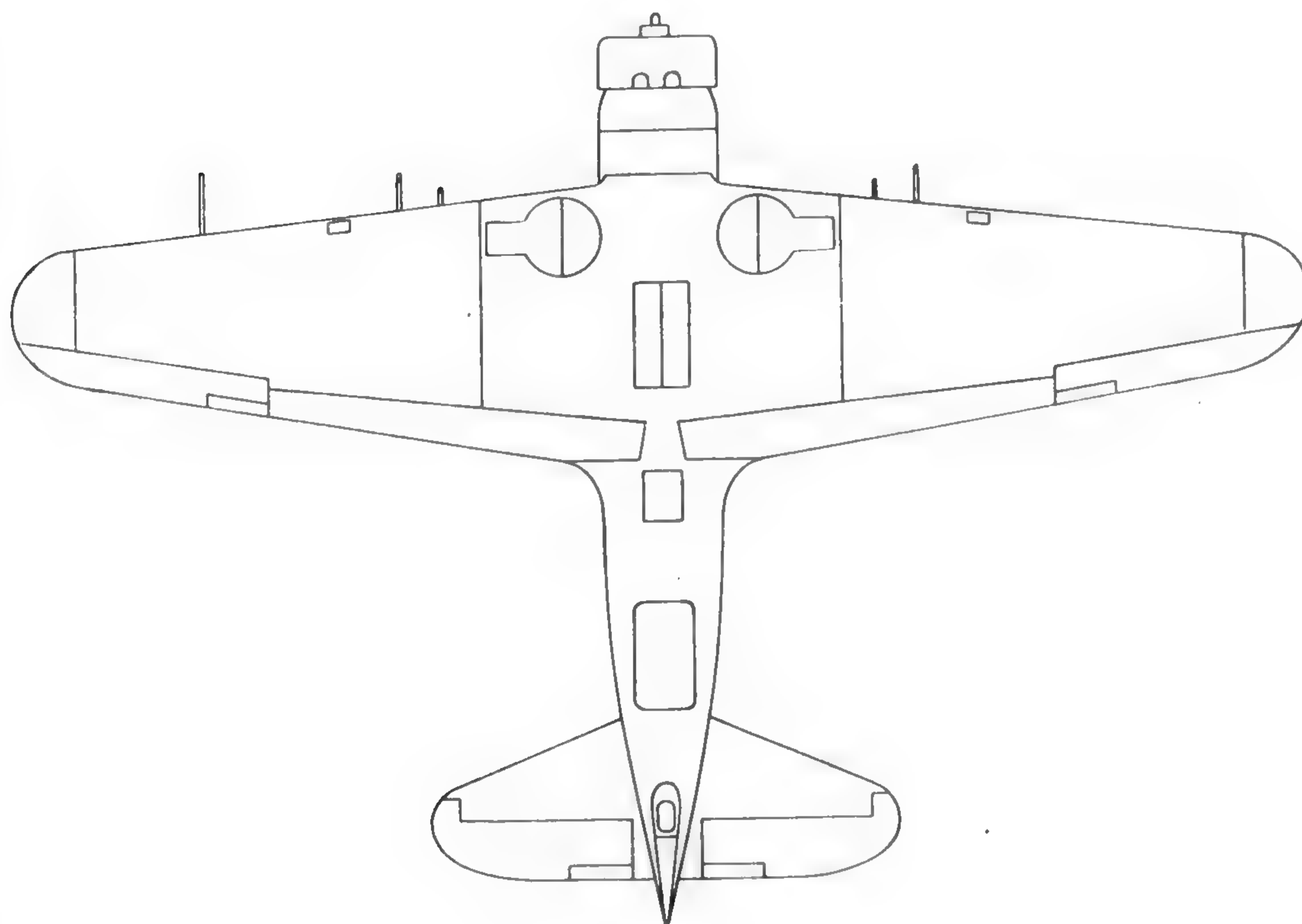
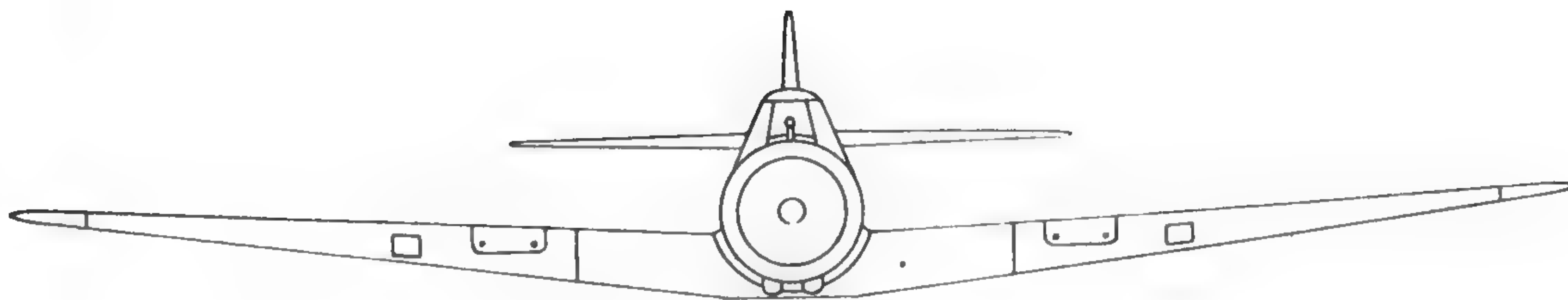
TYPE 98 SINGLE ENGINE LIGHT BOMBER

"MILLIE"



TYPE 98 SINGLE ENGINE LIGHT BOMBER

"MILLIE"



TYPE 98 SINGLE ENGINE LIGHT BOMBER

"MILLIE"

Originally Manufactured by:

Also Manufactured by:

Crew: Two or three

Engines: One radial, rated 850 h.p. at 5,800 ft.

Dimensions: Wing Span 50' Length 37' Height 10'

	Empty	Normal	Full Military Load
<i>Weights:</i>	6,250	9,700	11,600

Maximum Speed: 225 miles per hour at 6,800 ft.

Rate of Climb:

Service Ceiling:

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>	880	172	2,280	200	241
<i>Normal</i>	950	186	1,270	200	241
<i>Max. Fuel</i>	1,190	172	1,100	400	482

Radio: Two-way R/T.

Armour: Nil.

Armament: 2 x 20 mm. cannon, fixed wings.

1 x 7.7mm. M.G., flexible dorsal.

1 x 7.7mm. M.G., flexible ventral.

1 x 7.7mm. M.G., synchronized through propellor.

Ammunition:

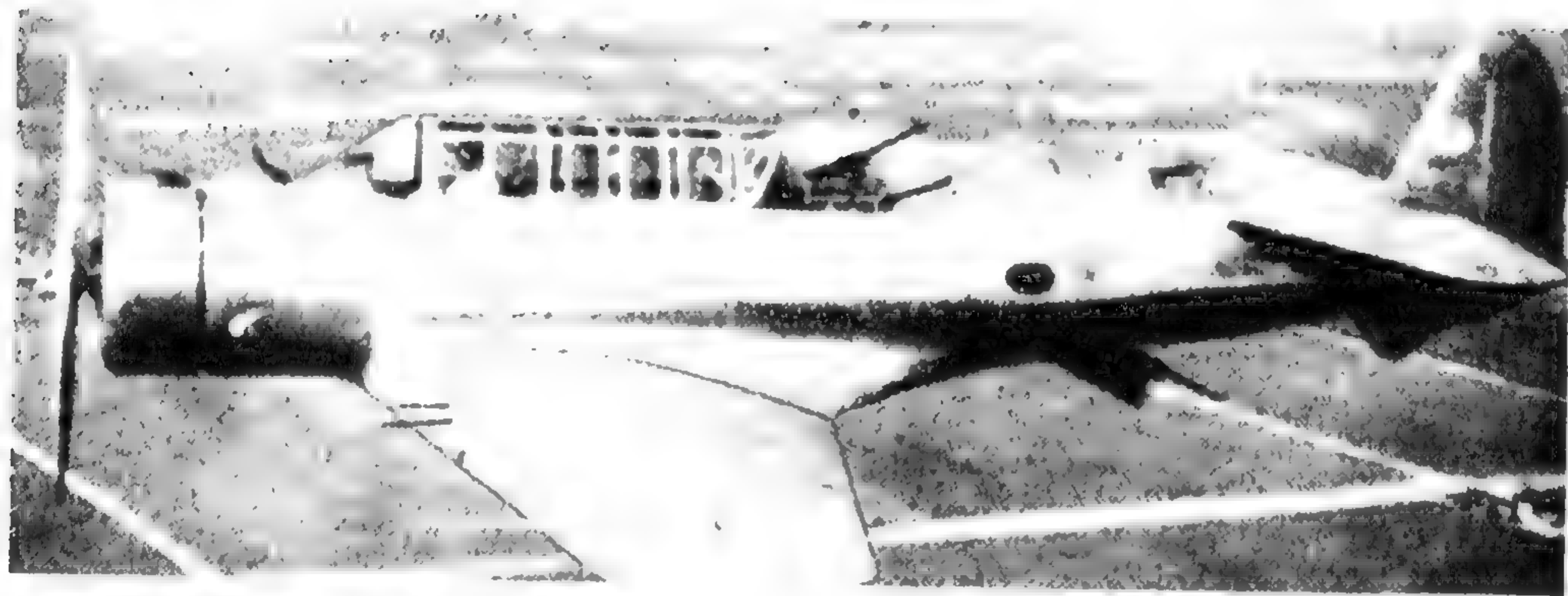
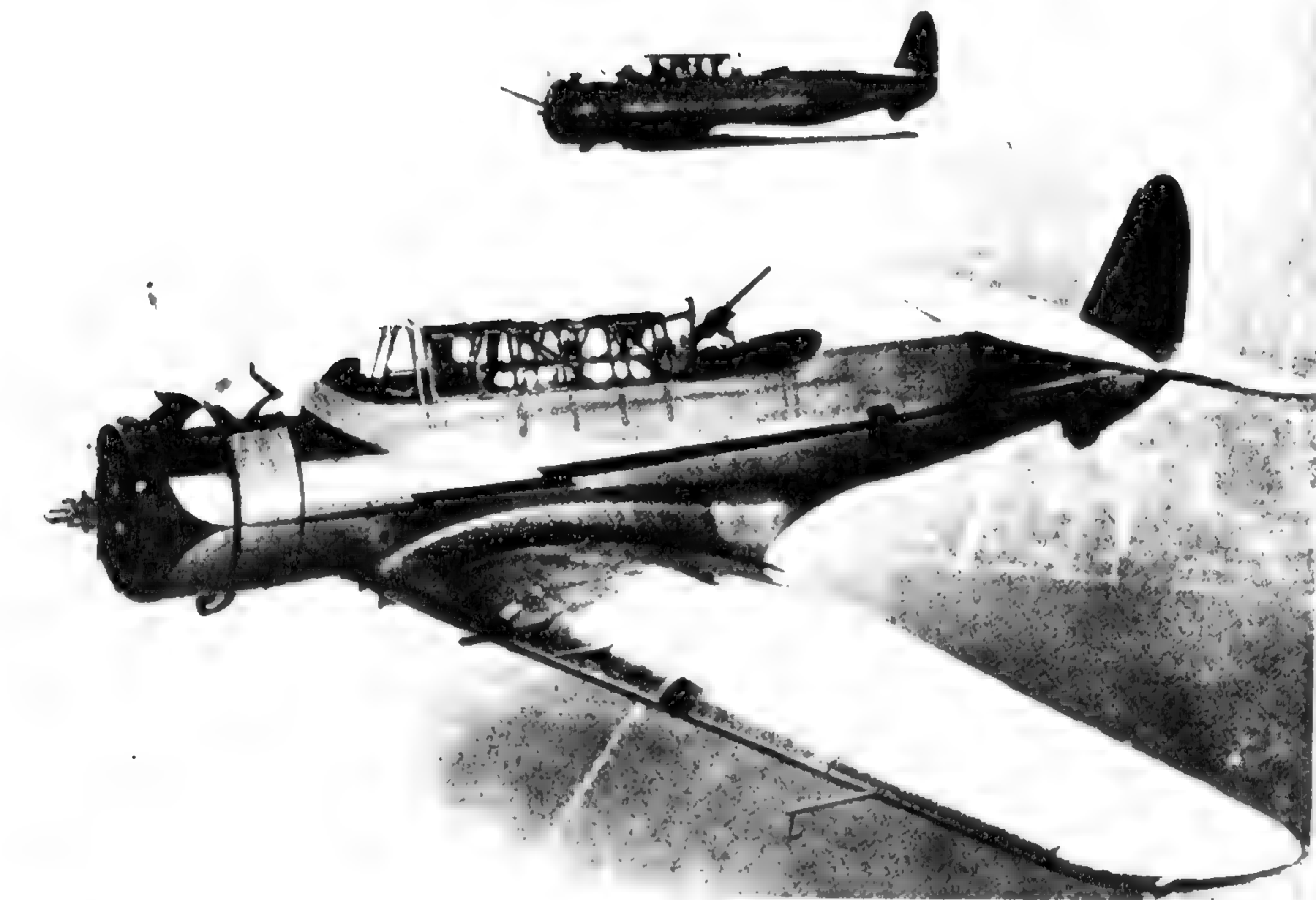
Vulnerability: No self-sealing tanks.

Remarks:

Tactical Data:

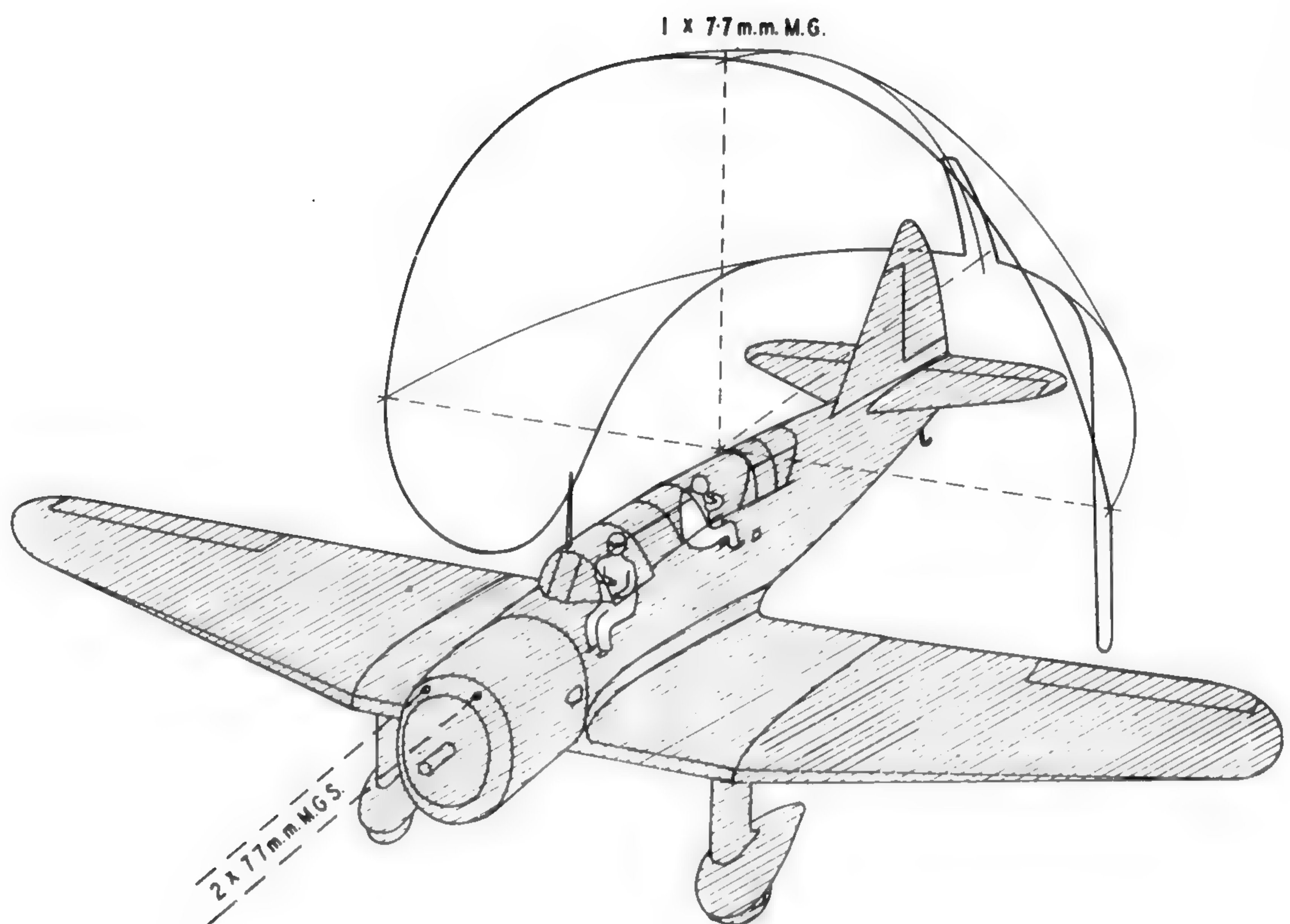
TYPE 98 SINGLE ENGINE LIGHT BOMBER

"MILLIE"



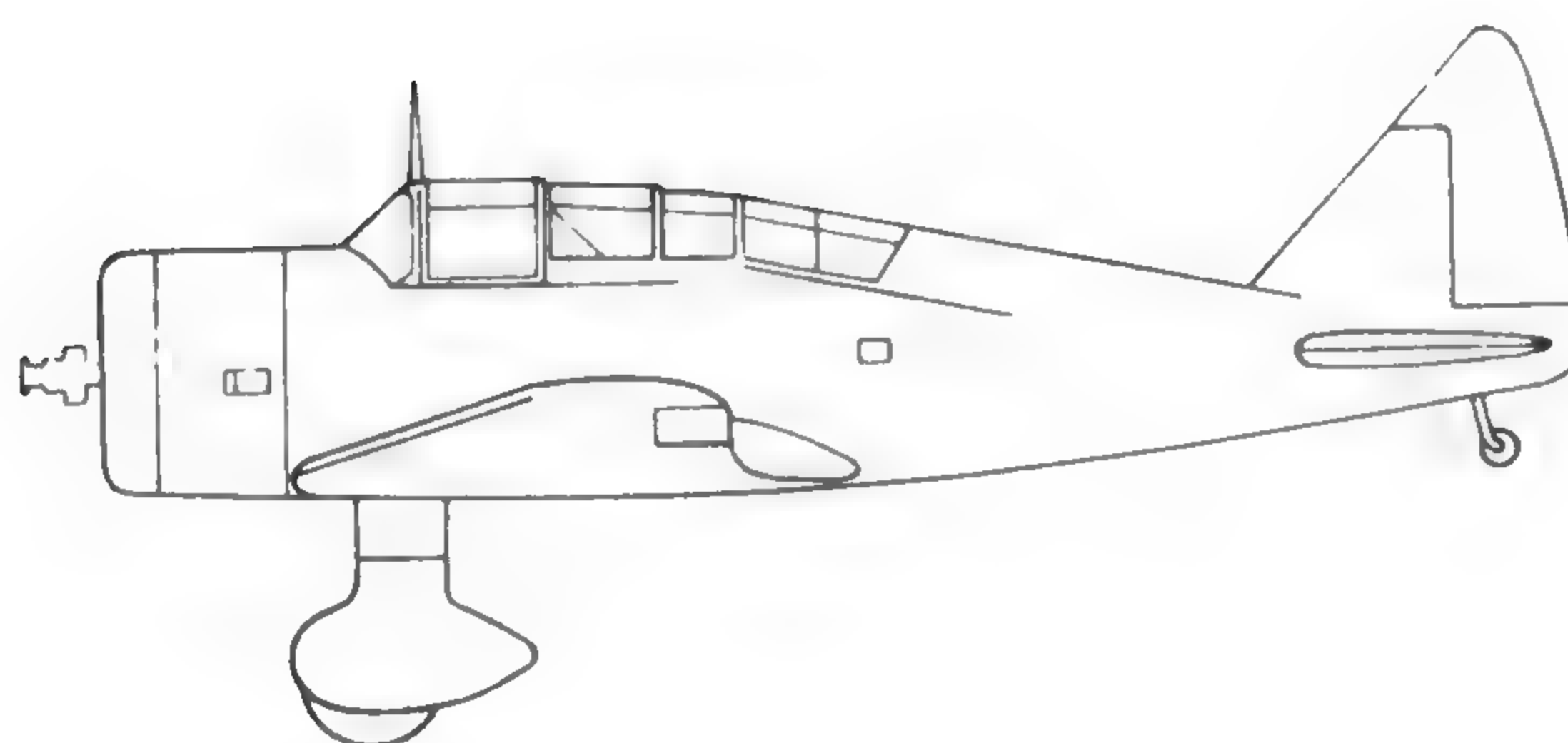
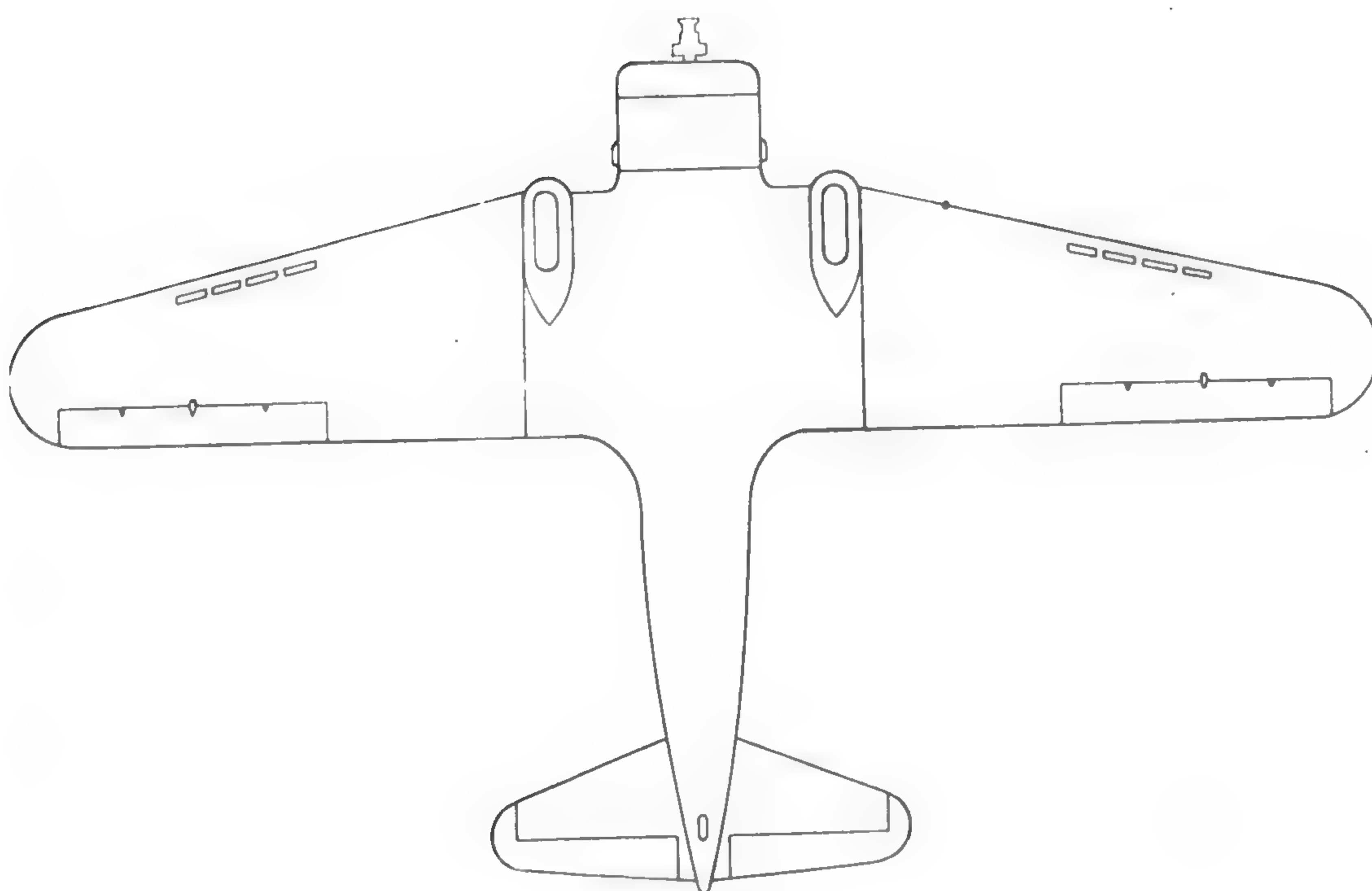
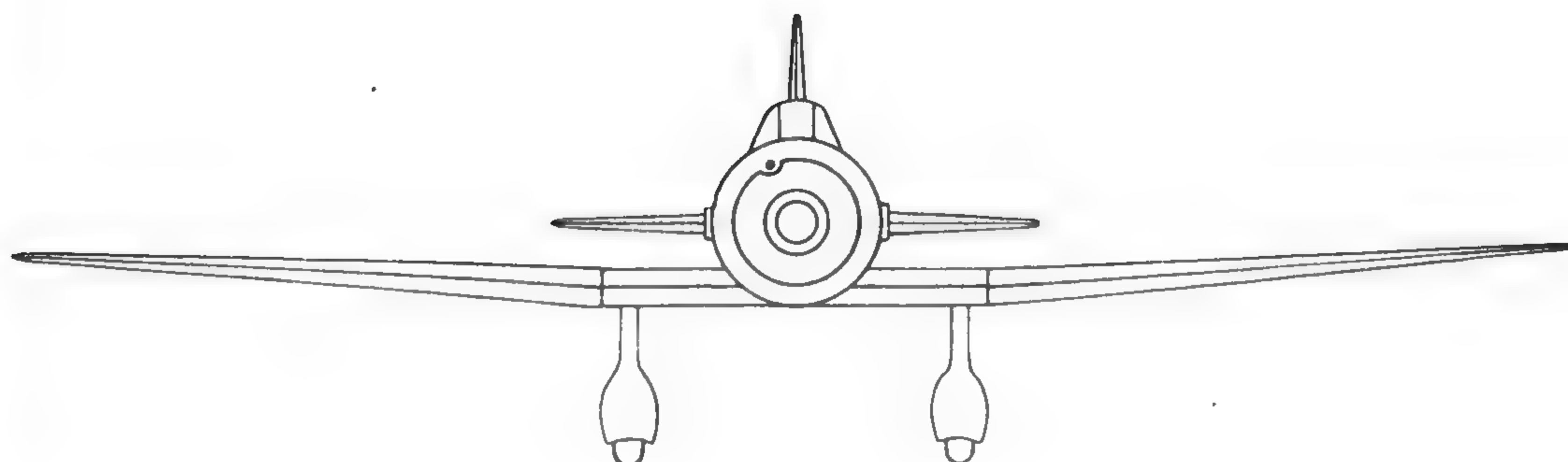
MITSUBISHI TYPE 98 ARMY SINGLE ENGINE LIGHT BOMBER

“IDA”



MITSUBISHI TYPE 98 ARMY SINGLE ENGINE LIGHT BOMBER

“IDA”



Change 1

60-18

MITSUBISHI TYPE '98 ARMY SINGLE ENGINE LIGHT BOMBER

“IDA”

Originally Manufactured by: Mitsubishi

Also Manufactured by:

Crew: Two or three

Engines: One Mitsubishi air-cooled radial, developing 900 h.p. at 9,000 ft.

Dimensions: Wing Span 47' 9" Length 34' 0" Height 11' 10"

	Empty	Normal	Full Military Load
Weights:	5,170 lbs.	7,800 lbs.	9,800 lbs. (estimated)

Maximum Speed: 260 miles per hour at 13,000 ft.

Rate of Climb:

Service Ceiling: 25,000 ft.

RANGE :

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
Max. Bombs	500	200	1,000 lbs.	140	168
Normal	480	208	1,230 lbs.	70	84
Max. Fuel					

Radio:

Armour: None.

Armament: 2 x 7.7 mm. M.G., forward fuselage.
1 x 7.7 mm. M.G., dorsal flexible.

Ammunition:

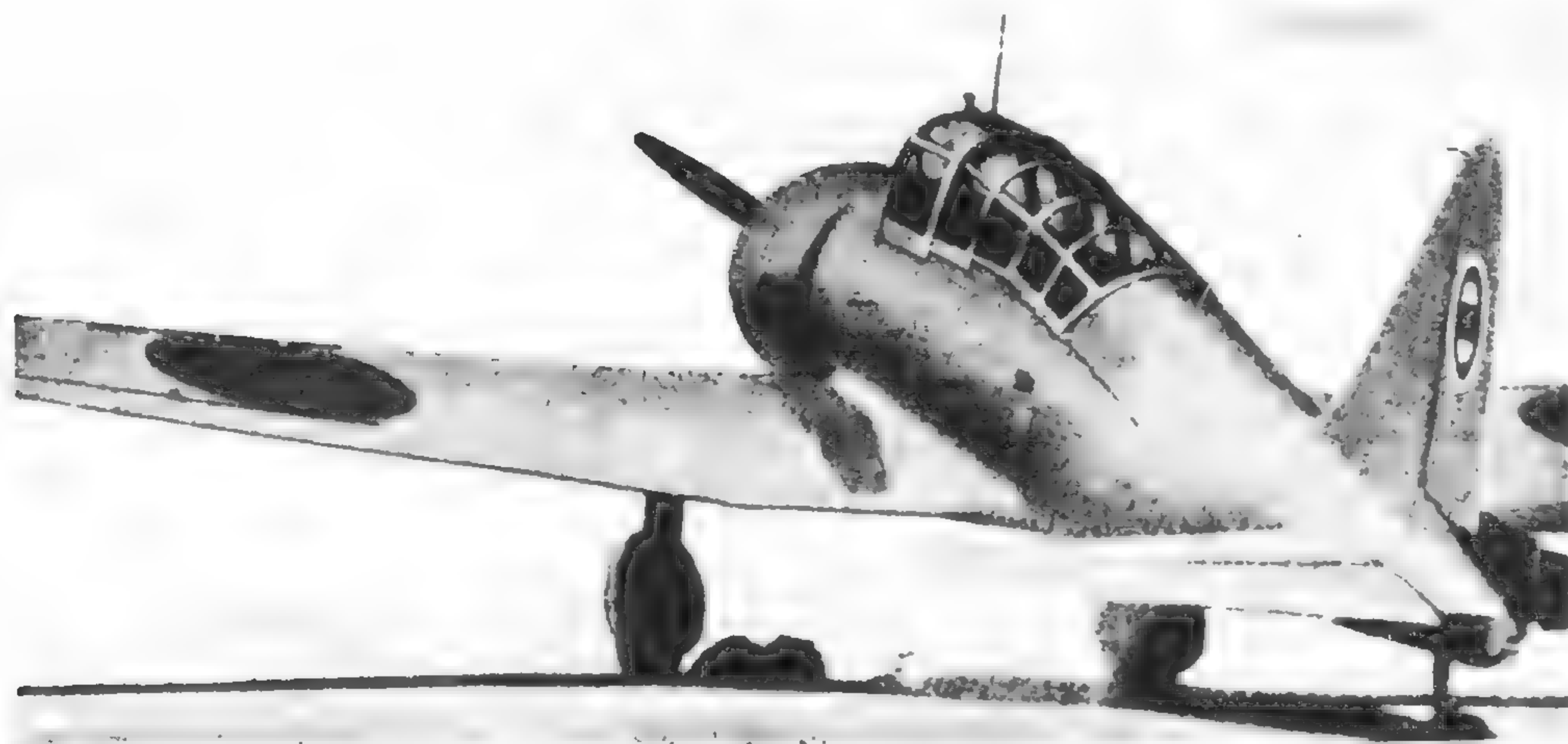
Vulnerability: No self-sealing tanks.

Remarks:

Tactical Data:

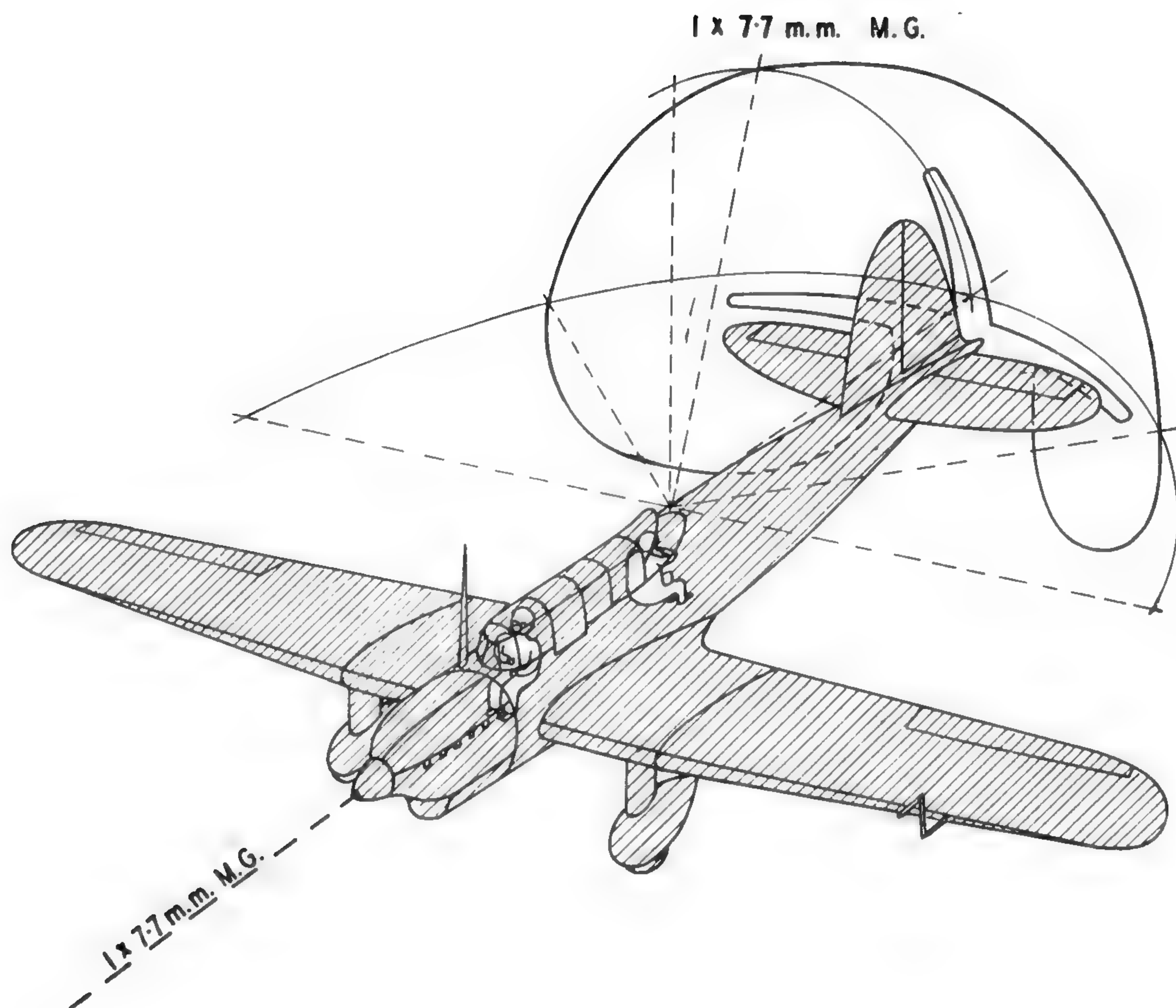
MITSUBISHI TYPE 98 ARMY SINGLE ENGINE LIGHT BOMBER

"IDA"



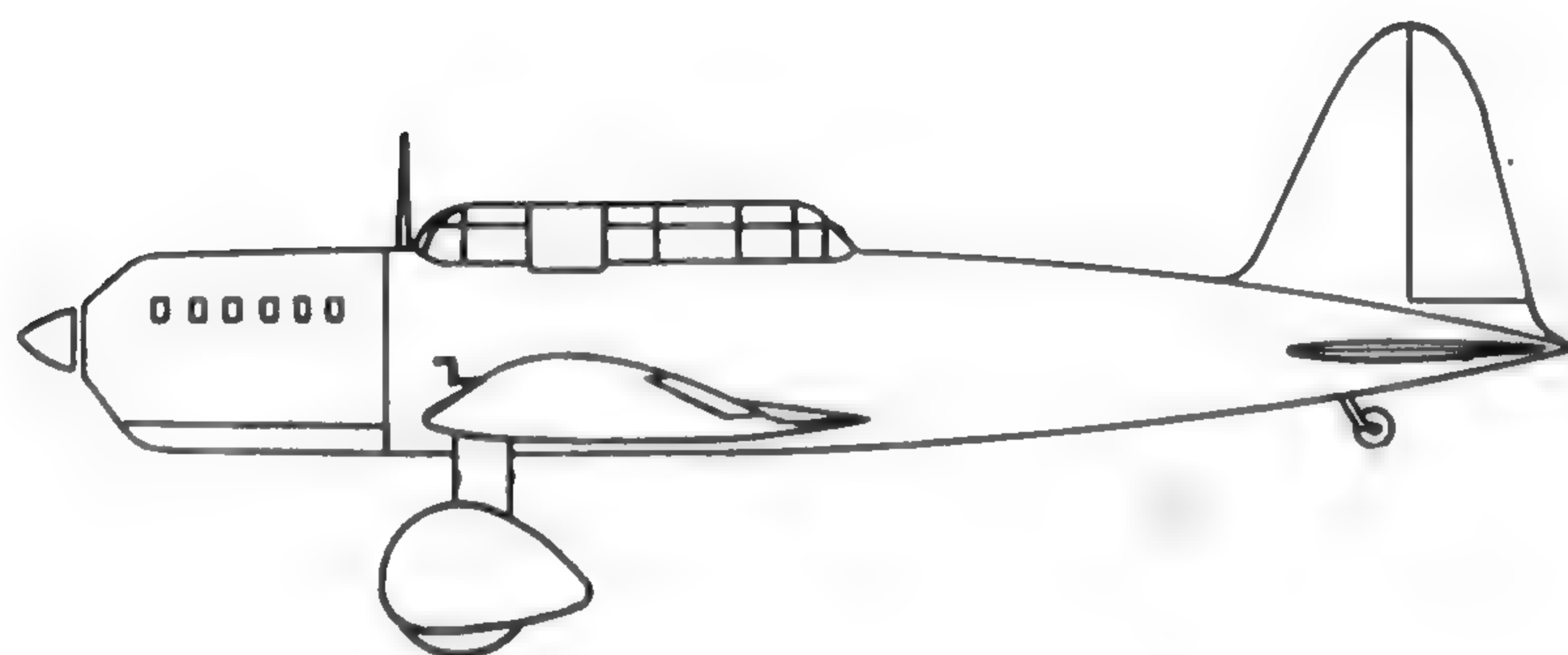
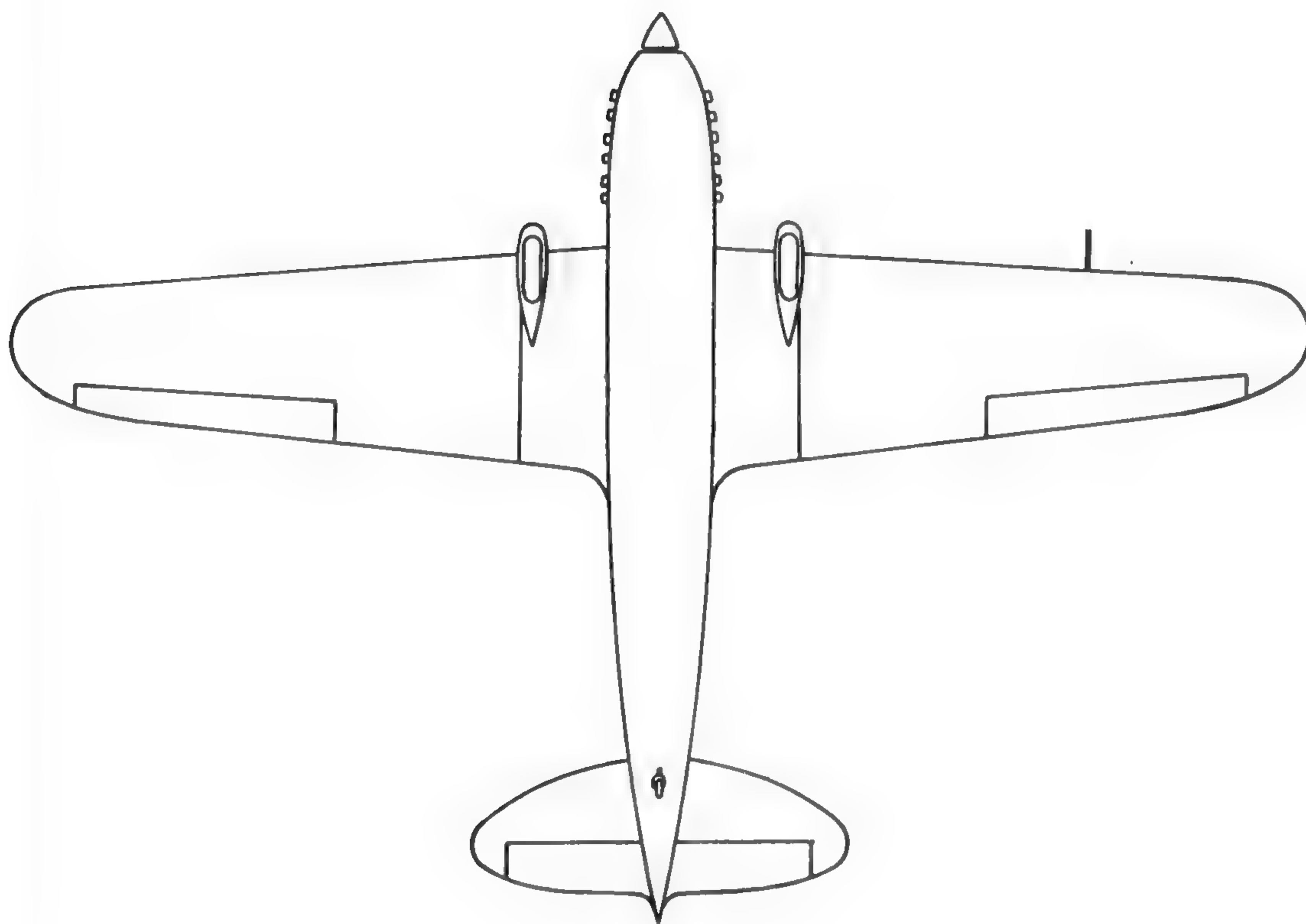
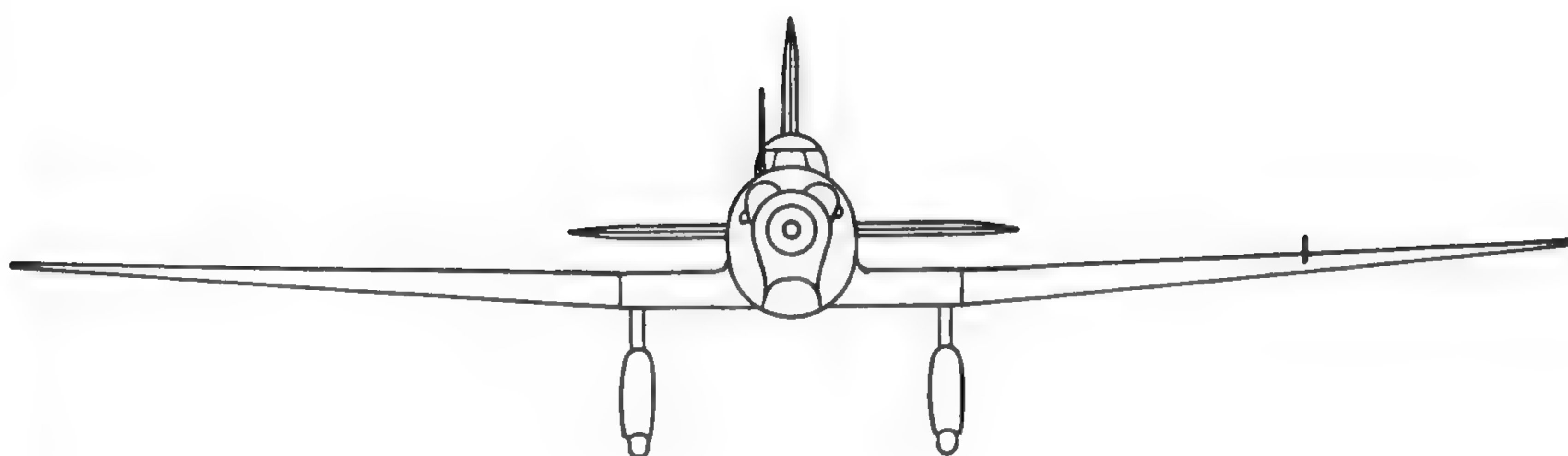
KAWASAKI TYPE 98 SINGLE ENGINE LIGHT BOMBER

"MARY"



KAWASAKI TYPE 98 SINGLE ENGINE LIGHT BOMBER

"MARY"



KAWASAKI TYPE 98 SINGLE ENGINE LIGHT BOMBER

"MARY"

Originally Manufactured by: Kawasaki

Also Manufactured by:

Crew: Two

Engines: One Kawasaki, 12-cylinder, liquid-cooled (BMW Type),
developing 900 h.p. at 6,500 ft.

<i>Dimensions:</i>	Wing Span 47' 8½"	Length	Height
	Empty	Normal	Full Military Load
<i>Weights:</i>	4,500 lbs.	7,000 lbs.	

Maximum Speed: 236 miles per hour at 13,000 ft.

Rate of Climb:

Service Ceiling: 25,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>					
<i>Normal</i>	490	206	800 lbs.	100	120
<i>Max. Fuel</i>					

Radio:

Armour:

Armament: Forward fuselage, 1 x 7.7mm. M.G., fixed.
Dorsal 1 x 7.7mm. M.G., flexible.

Ammunition:

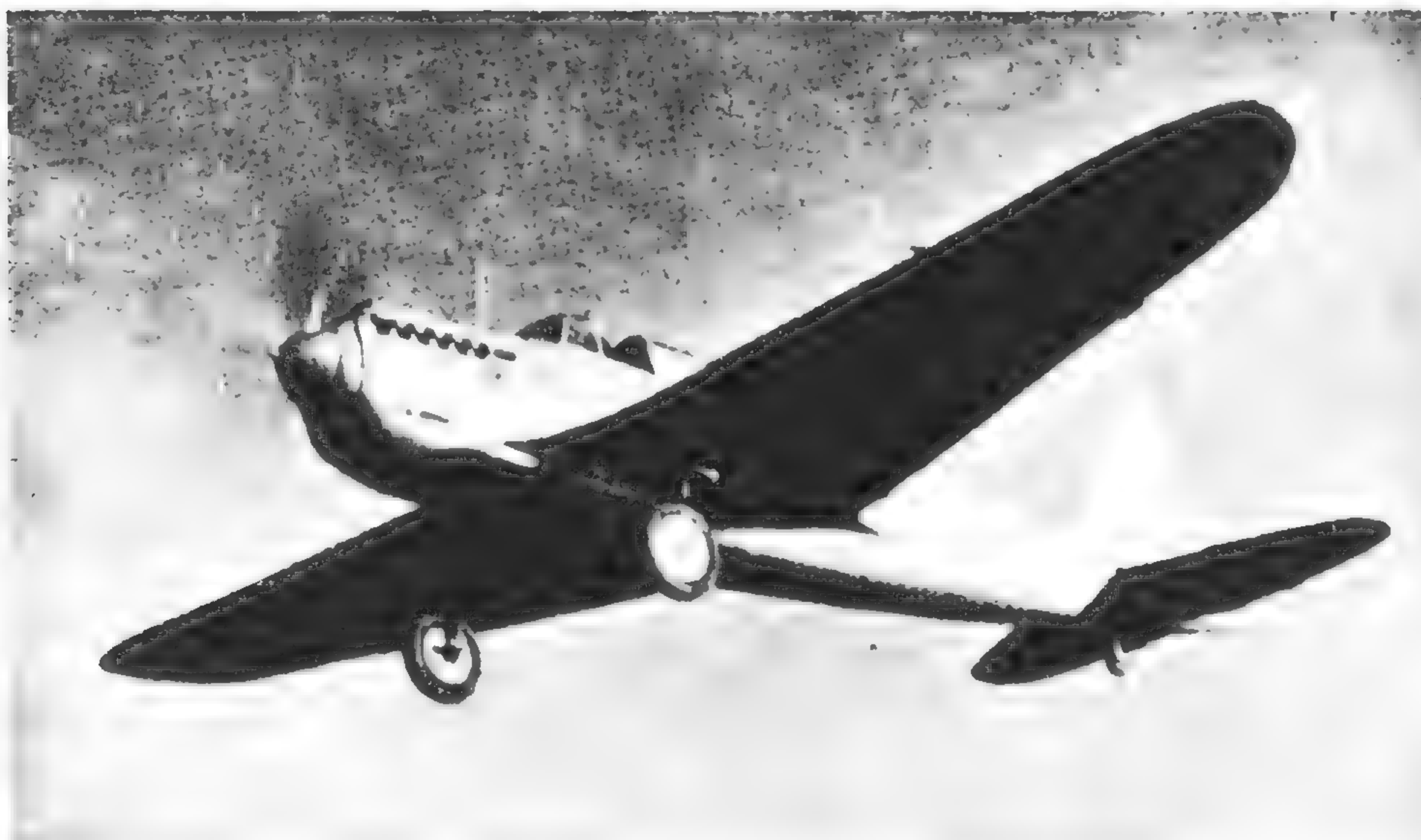
Vulnerability: No self-sealing tanks.

Remarks:

Tactical Data:

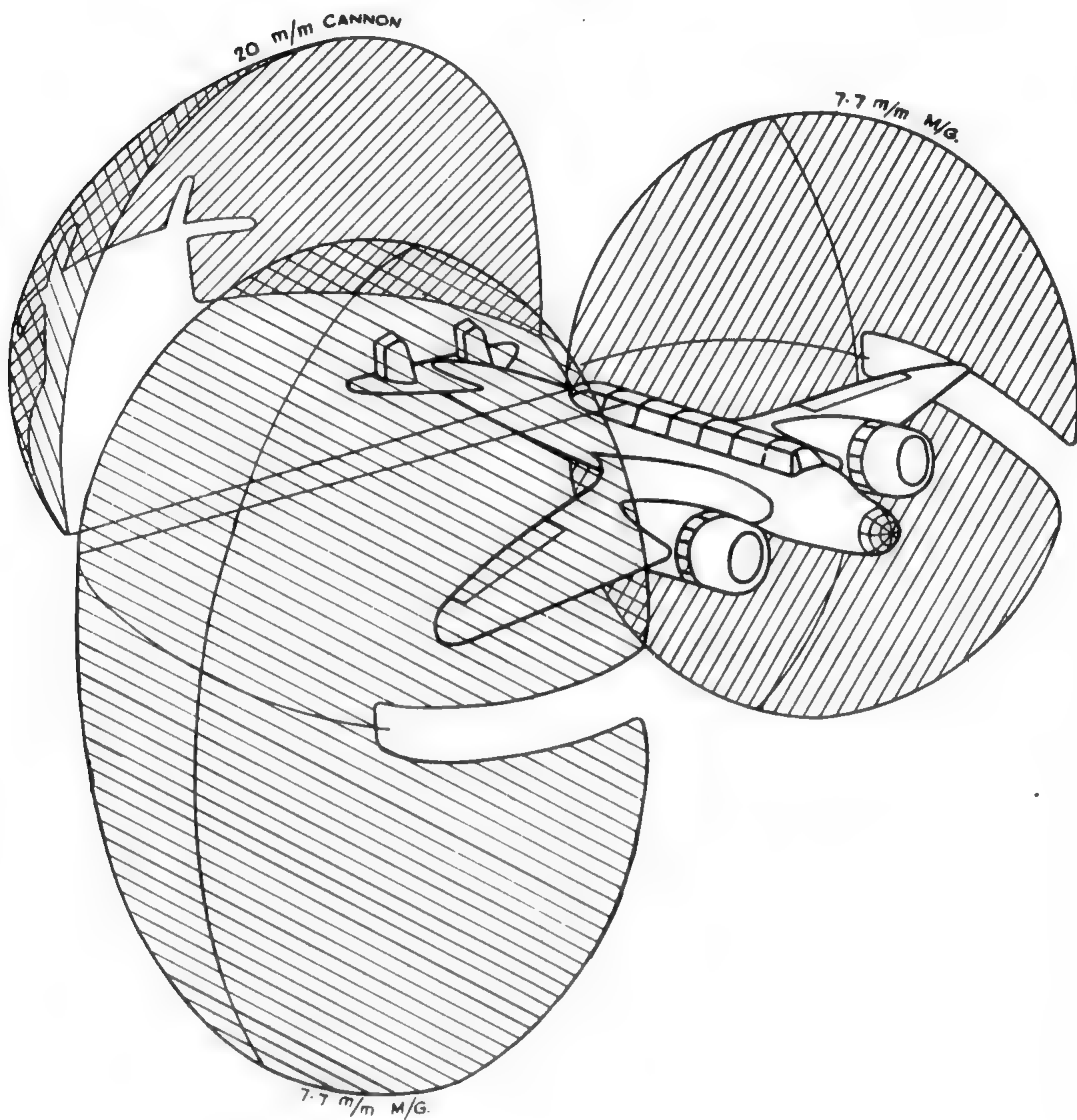
KAWASAKI TYPE 98 SINGLE ENGINE LIGHT BOMBER

"MARY"



NAKAJIMA TYPE 96 ARMY TWIN ENGINE MEDIUM BOMBER

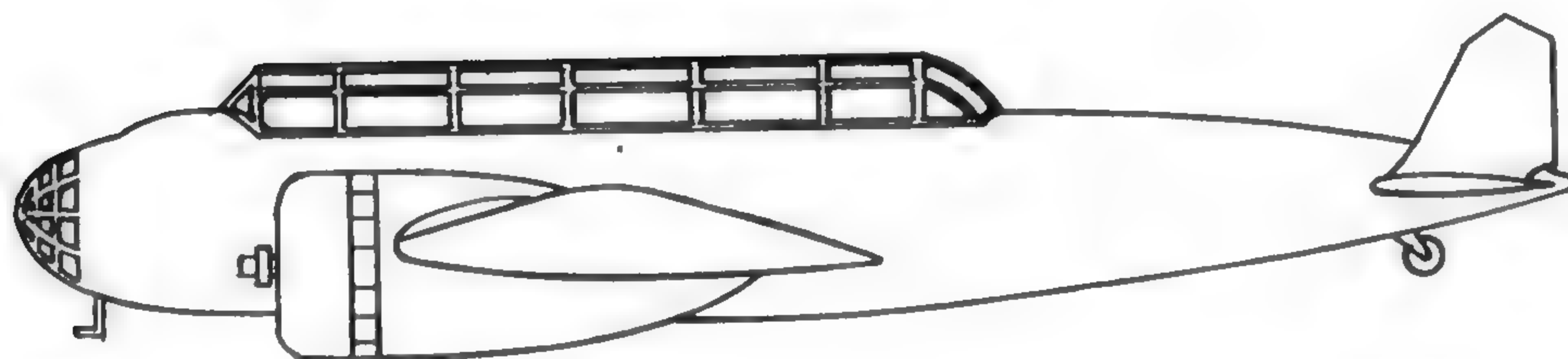
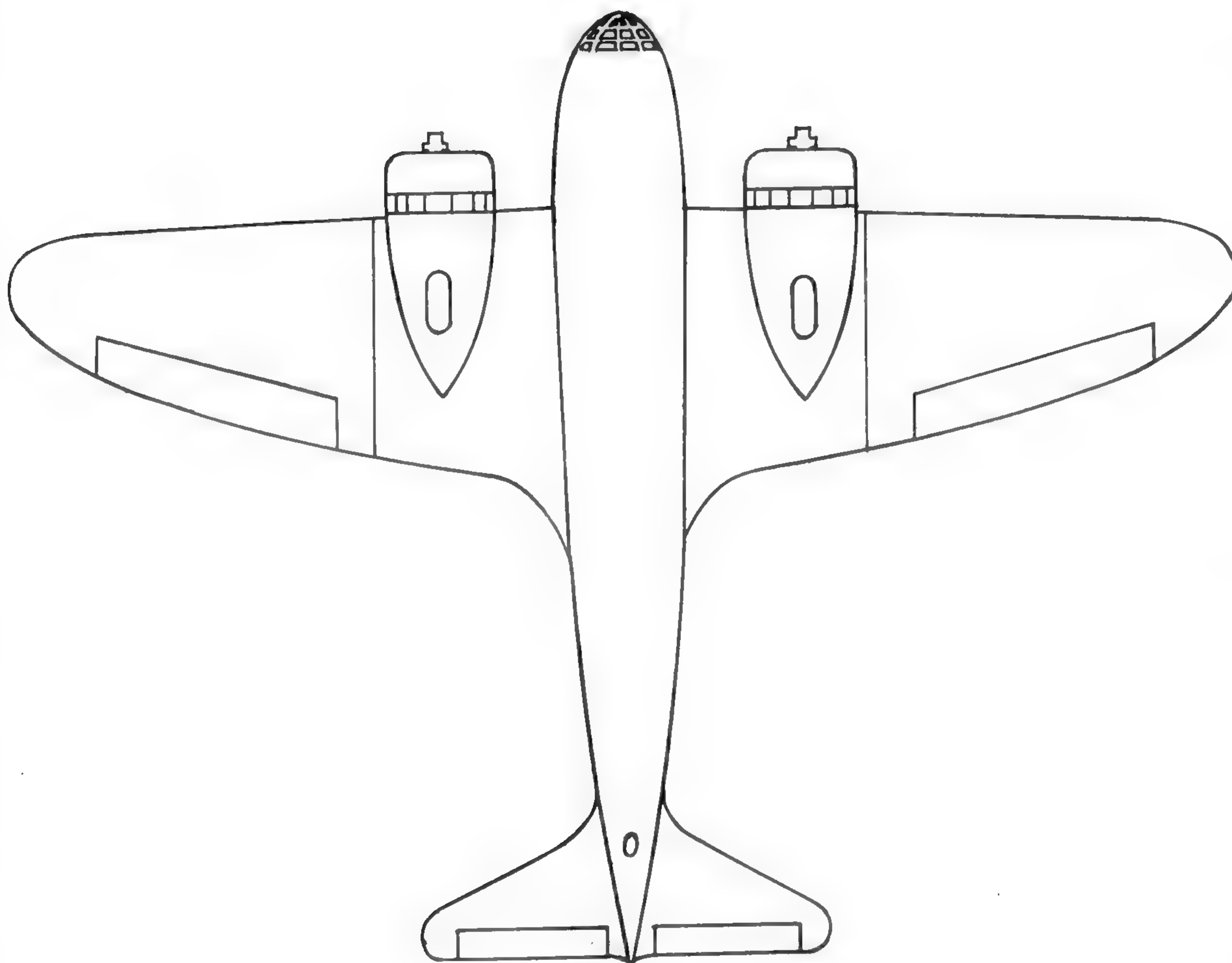
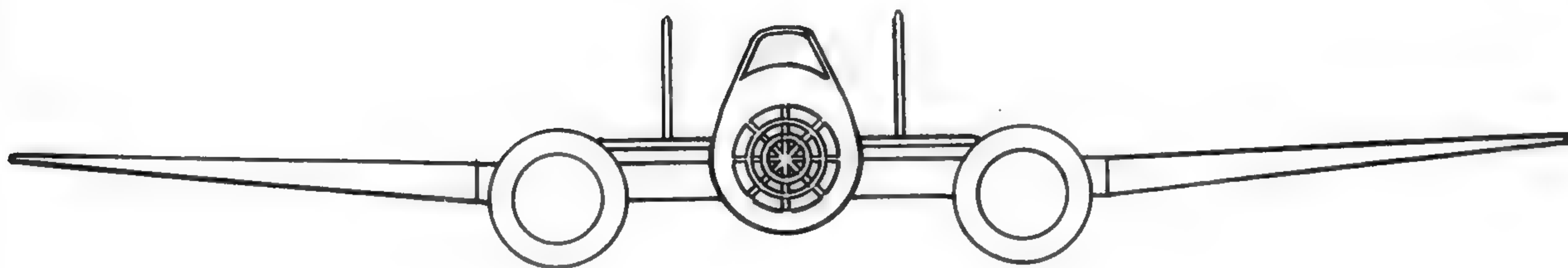
"EVE"



MEDIUM BOMBERS

NAKAJIMA TYPE 96 ARMY TWIN ENGINE MEDIUM BOMBER

"EVE"



NAKAJIMA TYPE 96 ARMY TWIN ENGINE MEDIUM BOMBER

“EVE”

Originally Manufactured by: Nakajima

Also Manufactured by:

Crew: Five

Engine: Two 14 cylinder radials rated at 1,000 h.p. each

Dimensions: Wing Span 59' Length 46' Height

	Empty	Full Military Load	Extra Fuel
Weights:			
Maximum Speed:	218 m. p. h. at 13,000 ft.		
Rate of Climb:			
Service Ceiling:			

	RANGE				
	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U.S. Gal.
Normal:	1,500-1,600	175 m. p. h.	6 x 132 lb.		550
Max. Fuel:	1,800-1,920				550-575

Radio: W/T carried

Armour: Nil

Armament: 2 x 7.7 mm. machine guns, one firing out of each side of cockpit behind pilot. Carries 6 x 132 pound bombs externally, stowed horizontally under fuselage in two rows of three. 1 x 20 mm. cannon at rear end of cockpit.

Ammunition: 7.7 mm. M.Gs.—4 to 5 drums each of 95 rounds for each gun. 20 mm. cannon—5 drums each of 60 rounds.

Vulnerability: One gasoline tank in each wing between engine and fuselage. Not self-sealing. Machine gun cannot be used to fire down underneath the fuselage.

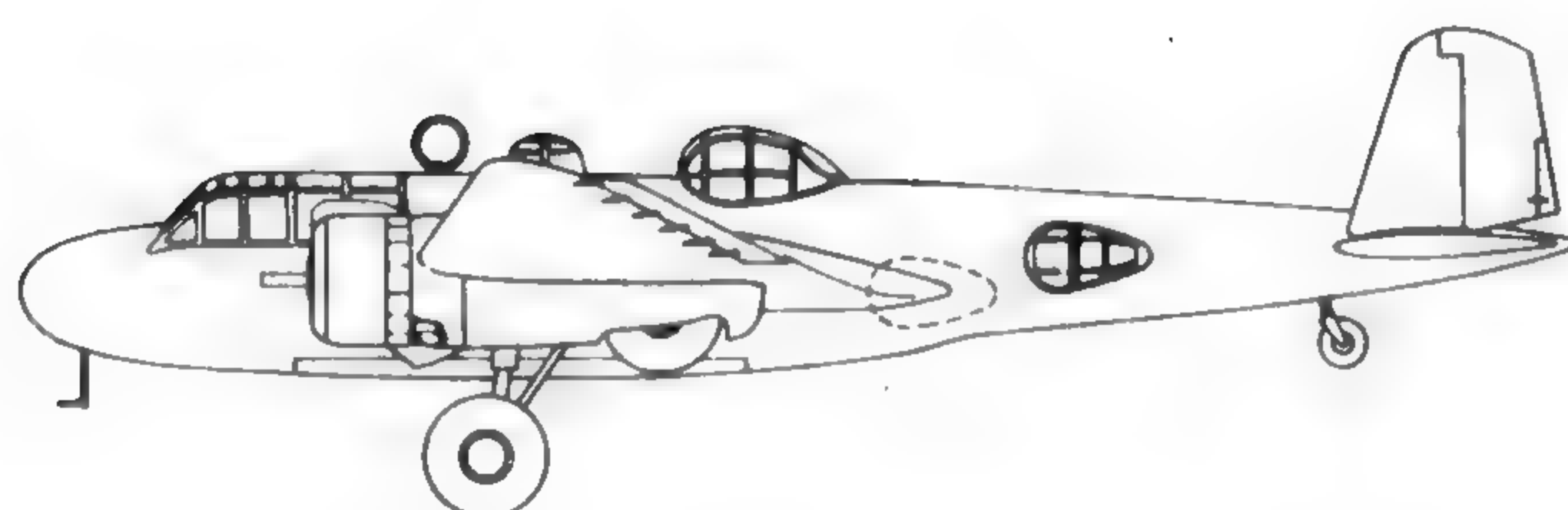
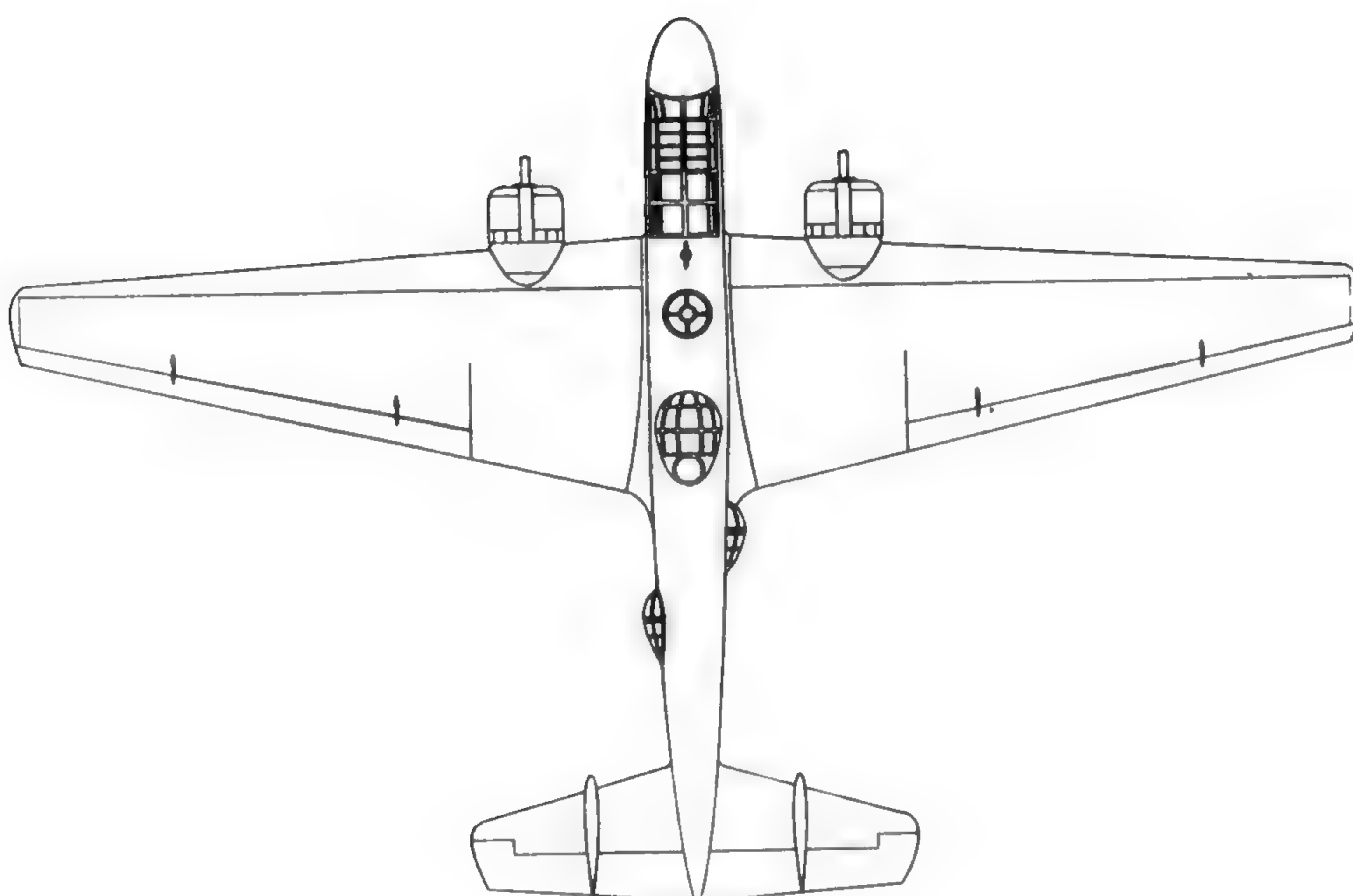
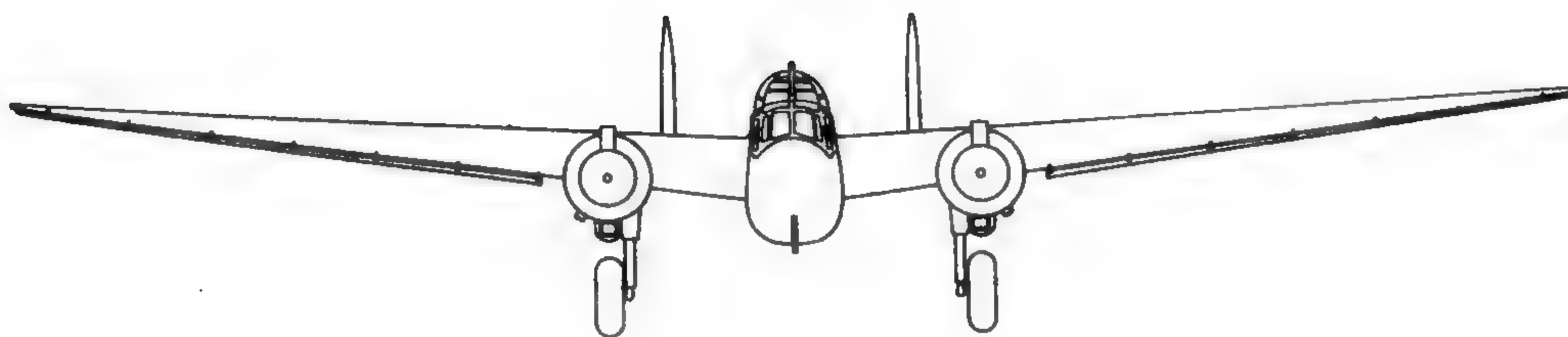
Remarks:

Tactical Data:



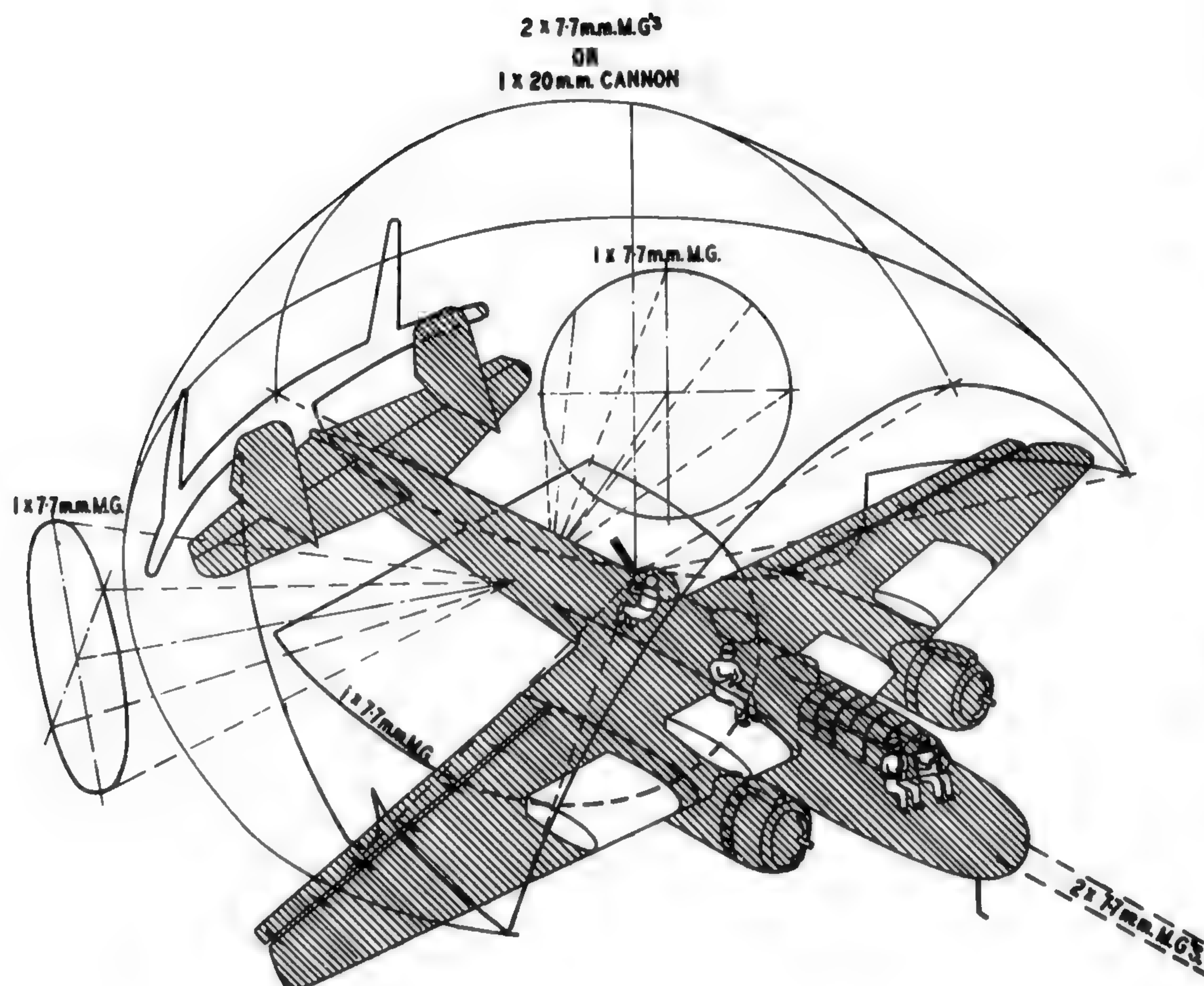
TYPE 96 MARK 4 ARMY AND NAVY TWIN ENGINE MEDIUM
BOMBER

"NELL"



TYPE 96 MARK 4 ARMY AND NAVY TWIN ENGINE MEDIUM
BOMBER

"NELL"



TYPE 96 MARK 4 ARMY AND NAVY TWIN ENGINE MEDIUM BOMBER

"NELL"

Originally Manufactured by: Mitsubishi.

Also Manufactured by: Nakajima.

Crew: Four to seven.

Engines: 2 Mitsubishi Kinsei 44, 14 cylinder, twin-row, air-cooled, radial engines. Single speed supercharger. Maximum ratings:
1,000 h. p. at take off.
1,060 h. p. at 6,500 ft.

Dimensions: Wing span 82' Length 54' Wing area 860 sq. ft.

	Empty	Normal Bomber	Normal Torpedo Bomber	Extra Fuel (Bomb bay tank)
Weights:	12,525 lbs.	22,300 lbs.	22,500 lbs.	23,500 lbs.
Maximum speed:	207 m. p. h. at S. L.	204 m. p. h. at S. L.	206 m. p. h. at S. L.	227 m. p. h. at 7,000'
	228 m. p. h. at 7,000'	224 m. p. h. at 7,000'		

Rate of Climb: 1,200 ft. per min. at sea level and 1,280 ft. per min. at 6,500 ft., as a normal bomber.

Service Ceiling: 24,800 ft.

RANGE:

Condition	Range Miles	Speed M. P. H.	Altitude Feet	Fuel U. S. Gal.
Normal bomber, 90% Vm.	1,140	203	6,500	940
Normal bomber, Max. Range	2,450	129	6,500	940
Max. Fuel, 90% Vm.	1,710	203	6,500	1,392
Max. Fuel, Max. Range	3,660	129	6,500	1,392

Radio: Two-way W/T and radio compass. May use R/T.

Armor: None.

Armament: 2 x 7.7 mm. machine guns in the nose.
1 x 20 mm. cannon in dorsal turret.
1 x 7.7 mm. machine gun in each side blister.
1 x 7.7 mm. machine gun in the belly.
1 x 7.7 mm. machine gun in the tail.

Ammunition: 300 rounds for each machine gun and 60 rounds for the cannon.

Bombs: Normal bomber carries 12 x 60-kg. bombs, alternate bomb loadings are 8 x 100-kg., 4 x 250-kg., or 2 x 500-kg. bombs. When used as a torpedo plane, 1 x 800-kg. torpedo can be carried.

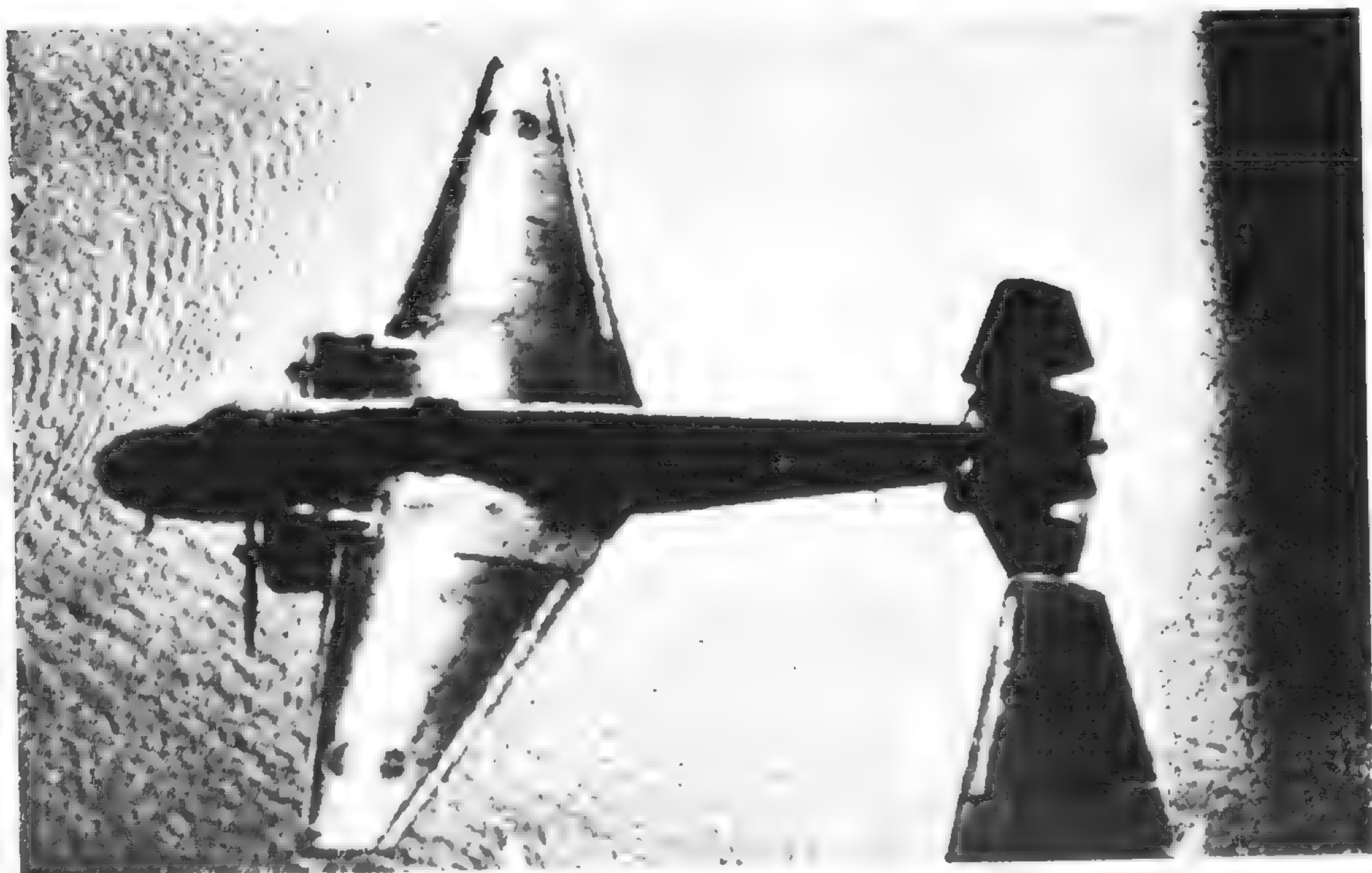
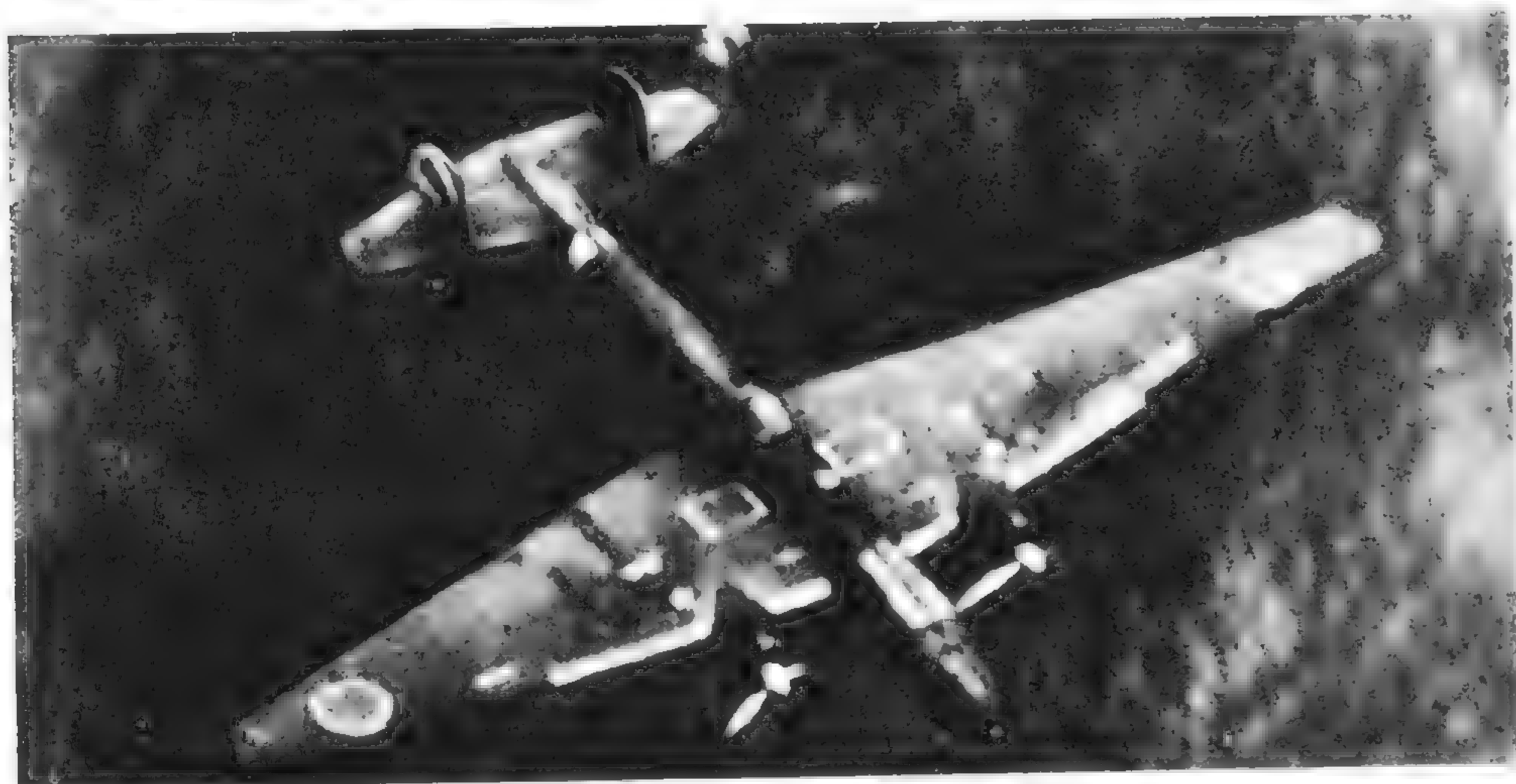
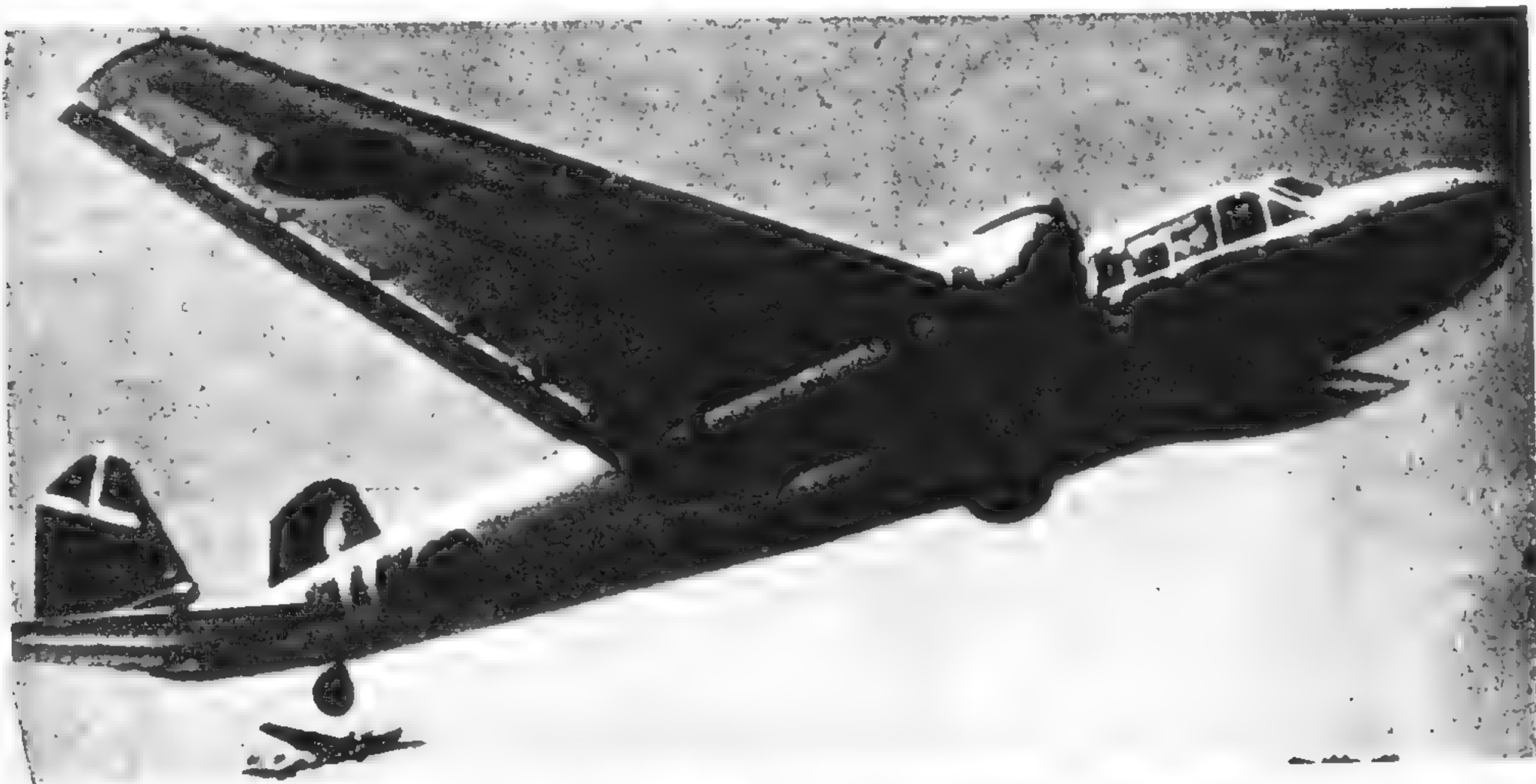
Vulnerability: No protection is provided for crew, fuel or engines.

Remarks: In computing the range, allowance was made for 5-minute warm-up and take off at maximum rated power plus rated power climb to 6,500 feet.

Tactical Data:

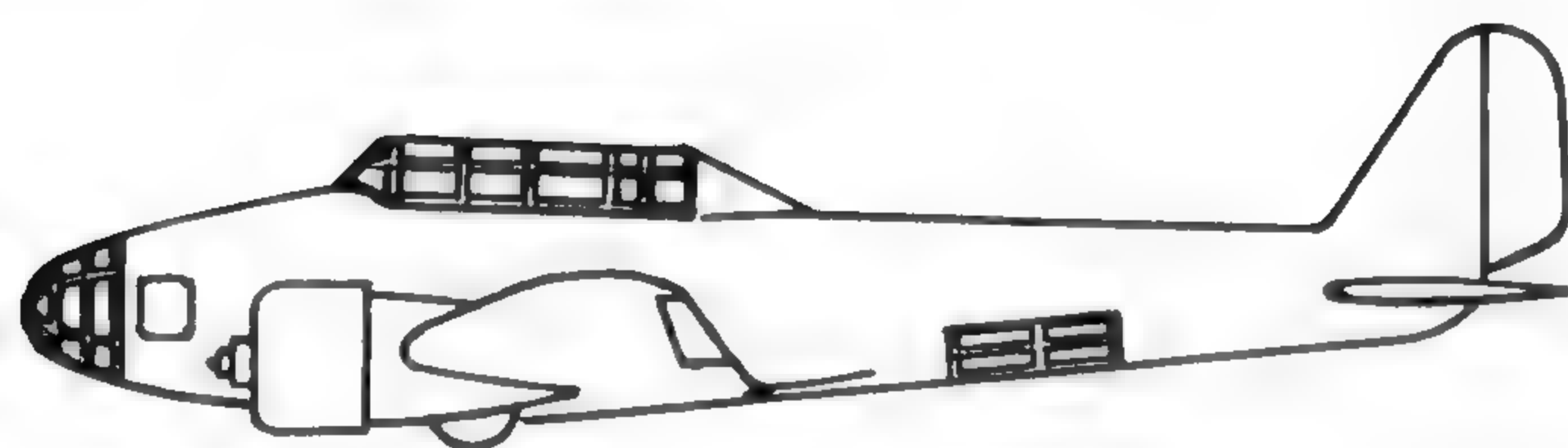
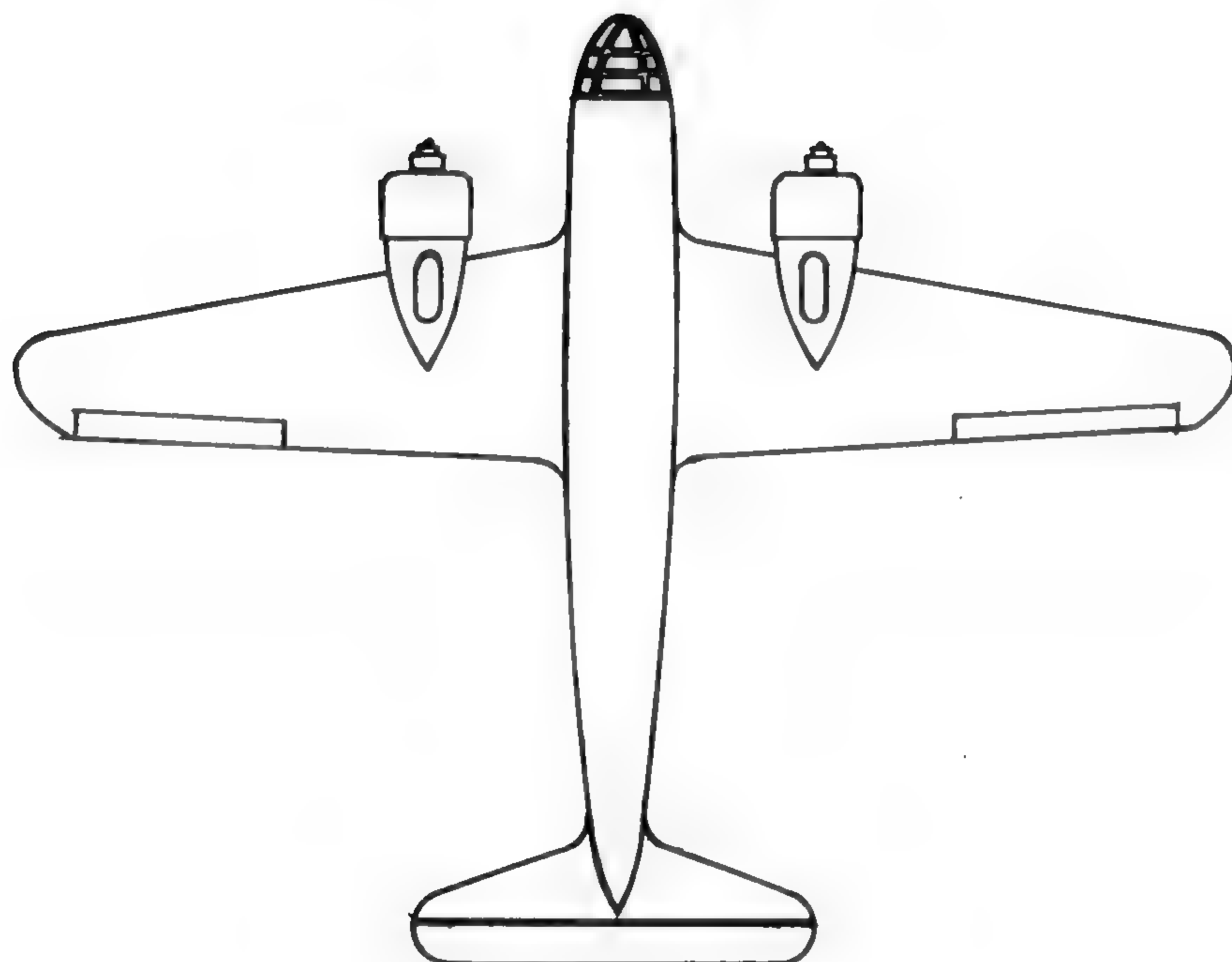
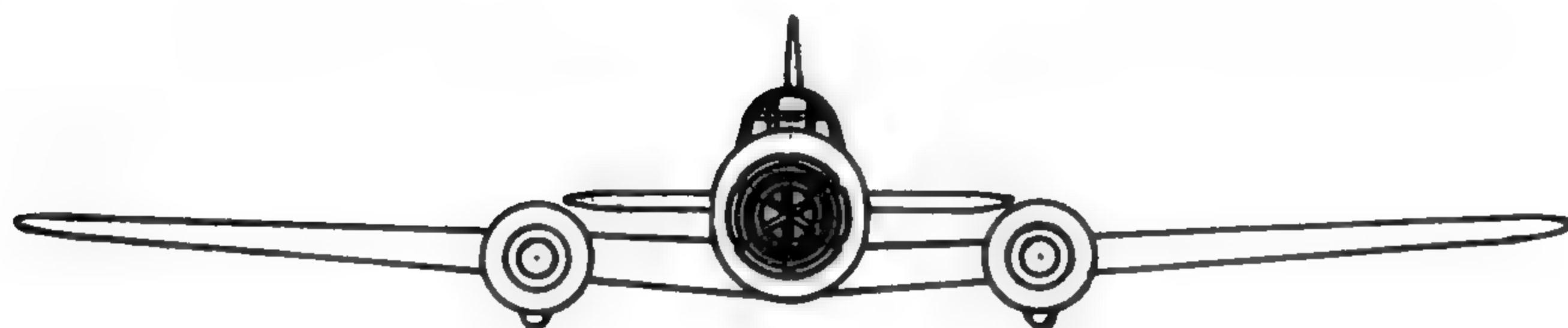
TYPE 96 MARK 4 ARMY AND NAVY TWIN ENGINE MEDIUM
BOMBER

"NELL"



KAWASAKI TYPE 97 ARMY TWIN ENGINE MEDIUM BOMBER

"JULIA"



KAWASAKI TYPE 97 ARMY TWIN ENGINE MEDIUM BOMBER

"JULIA"

Originally Manufactured by: Kawasaki

Also Manufactured by:

Crew: Provision for crew of five to seven

Engine: Two 820 h.p. Kawasaki type 98 air-cooled radial engines

Dimensions: Wing Span 75' 0" Length 62' 0" Height 12' 5"

	Empty	Full Military Load	Extra Fuel
Weights:	18,000 lb.	20,900 lb.	24,300 lb.

Maximum Speed: 245 m. p. h. at 15,000 ft.

Rate of Climb:

Service Ceiling: 24,500 ft.

RANGE :

	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U.S. Gal.
Normal	1,250	208	4,400 lb.		510
Max. Fuel	2,000	208	2,000 lb.		510

Radio: Probably long range W/T and R/T on medium and high frequency
D/F facilities on M/F

Armour: Nil

Armament: Forward fuselage 1 x 7.7 mm. and 2 x 25 mm.
Dorsal 2 x 7.7 mm.
Ventral 1 x 7.7 mm.

Ammunition:

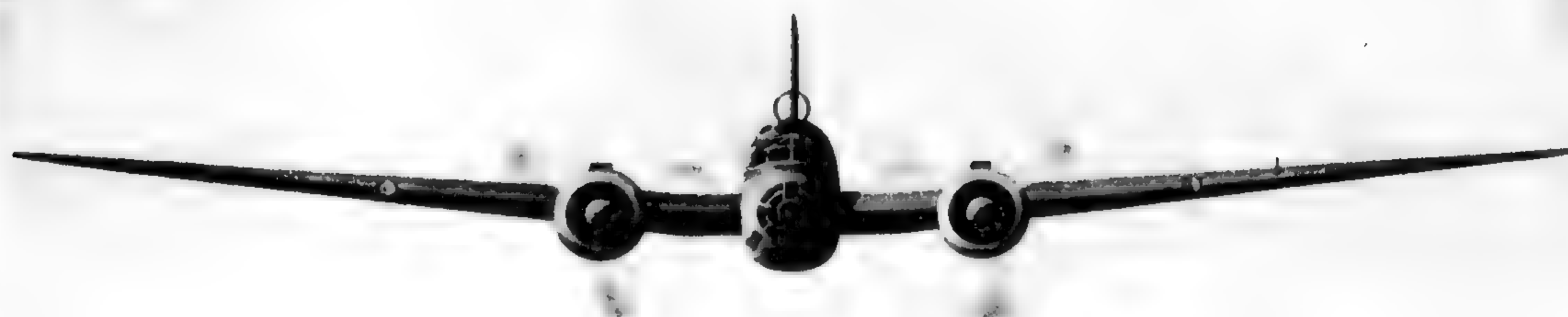
Vulnerability:

Remarks: Twin-engined low-wing monoplane with retractable under-carriage. Retractable tail wheel.

Tactical Data:

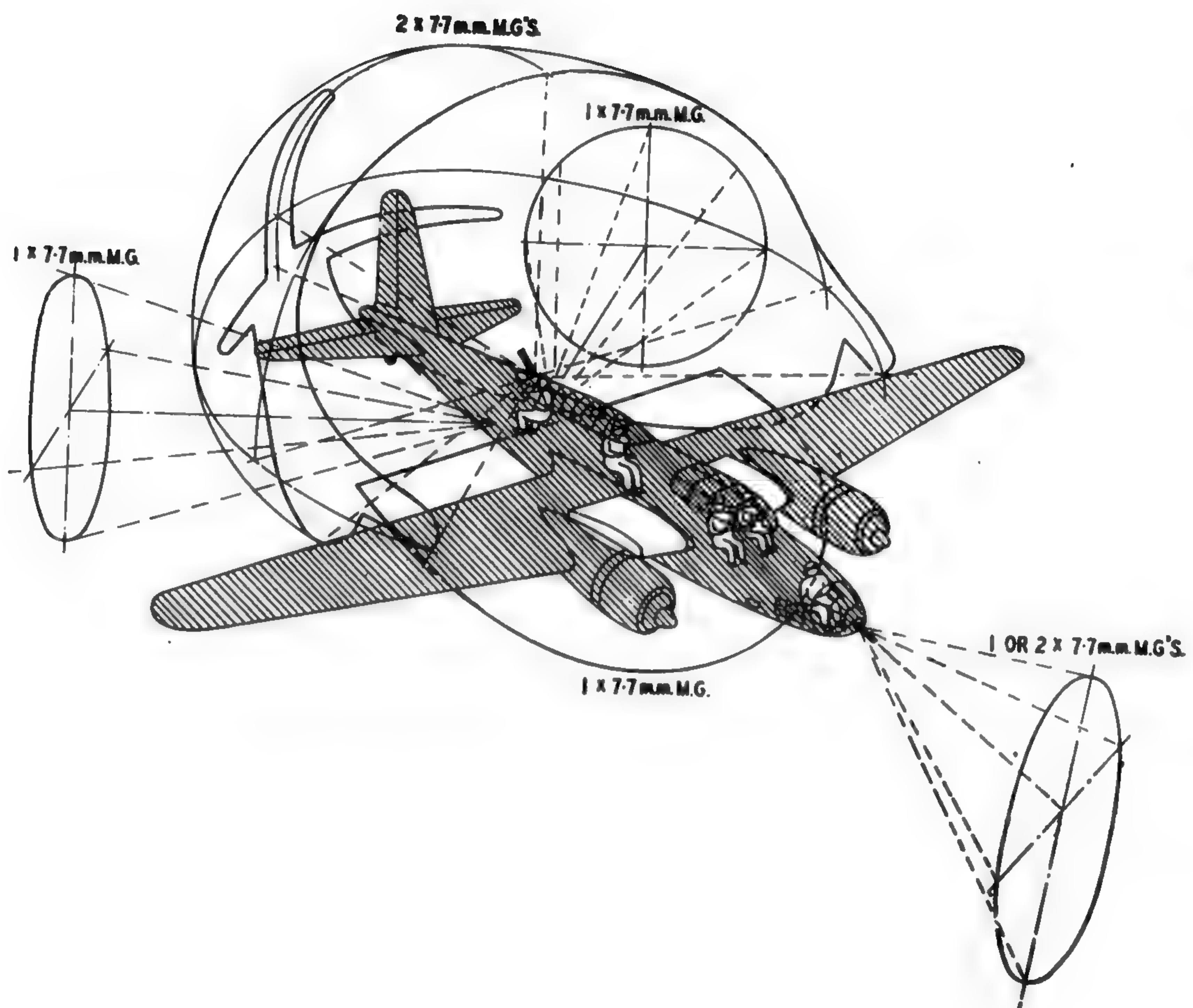
TYPE 97 ARMY TWIN ENGINE MEDIUM BOMBER

"SALLY"



TYPE 97 ARMY TWIN ENGINE MEDIUM BOMBER

"SALLY"



TYPE 97 MARK 1 ARMY TWIN ENGINE MEDIUM BOMBER

"SALLY 1"

Originally Manufactured by: Mitsubishi.

Also Manufactured by: Nakajima.

Crew: Five to seven.

Engines: 2 Mitsubishi Kinsei 44, 14 cylinder, twin row, air cooled radial engines. Single speed supercharger. Maximum ratings:
1,000 h. p. at take off.
1,060 h. p. at 6,500 ft.

Dimensions: Wing span 72' Length 52' Height 12'
Wing area 675 sq. ft. (?)

	Empty	Normal Bomber	Overload Bomber
Weights:	12,075 lbs.	22,165 lbs.	22,370 lbs.

Maximum Speed: 227 m. p. h. at sea level.
251 m. p. h. at 7,700 ft.

Rate of Climb: 1,180 ft. per min. at sea level.
1,270 ft. per min. at 6,500 ft.

Service Ceiling: 23,700 ft.

RANGE:

Condition	Miles	Speed M. P. H.	Altitude Feet	Fuel U. S. Gal.
Normal bomber, 90% Vm.	1,300	226	6,500	976
Normal bomber, Max. Range	2,710	145	6,500	976
Overload bomber, 90% Vm.	845	226	6,500	651
Overload bomber, Max. Range	1,720	145	6,500	651

Radio: Probably long range W/T and R/T. May have R/DF.

Armor: None.

Armament: 2 x 7.7 mm. machine guns in nose.
2 x 7.7 mm. machine guns in dorsal position.
2 x 7.7 mm. machine guns in lateral position (one on each side).
1 x 7.7 mm. machine gun in ventral position.
Possibly 1 x 7.7 mm. machine gun in the tail.

Ammunition:

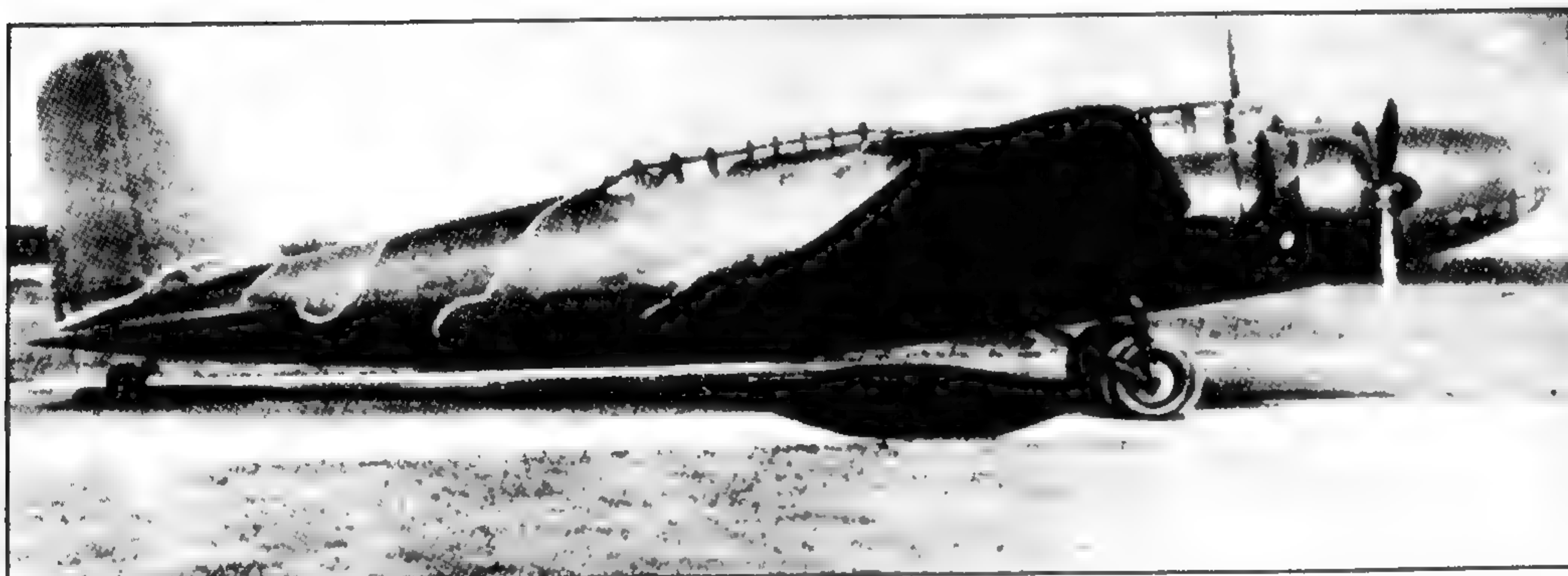
Bombs: Normal bomber carries 2,200 pounds of bombs and 976 gallons of fuel. Overland bomber carries 4,400 pounds of bombs but with this bomb load the fuel must be reduced to 651 gallons.

Vulnerability: No protection is provided for crew, fuel tanks or engines. (There have been a few reports of armor being used but this has not been confirmed.)

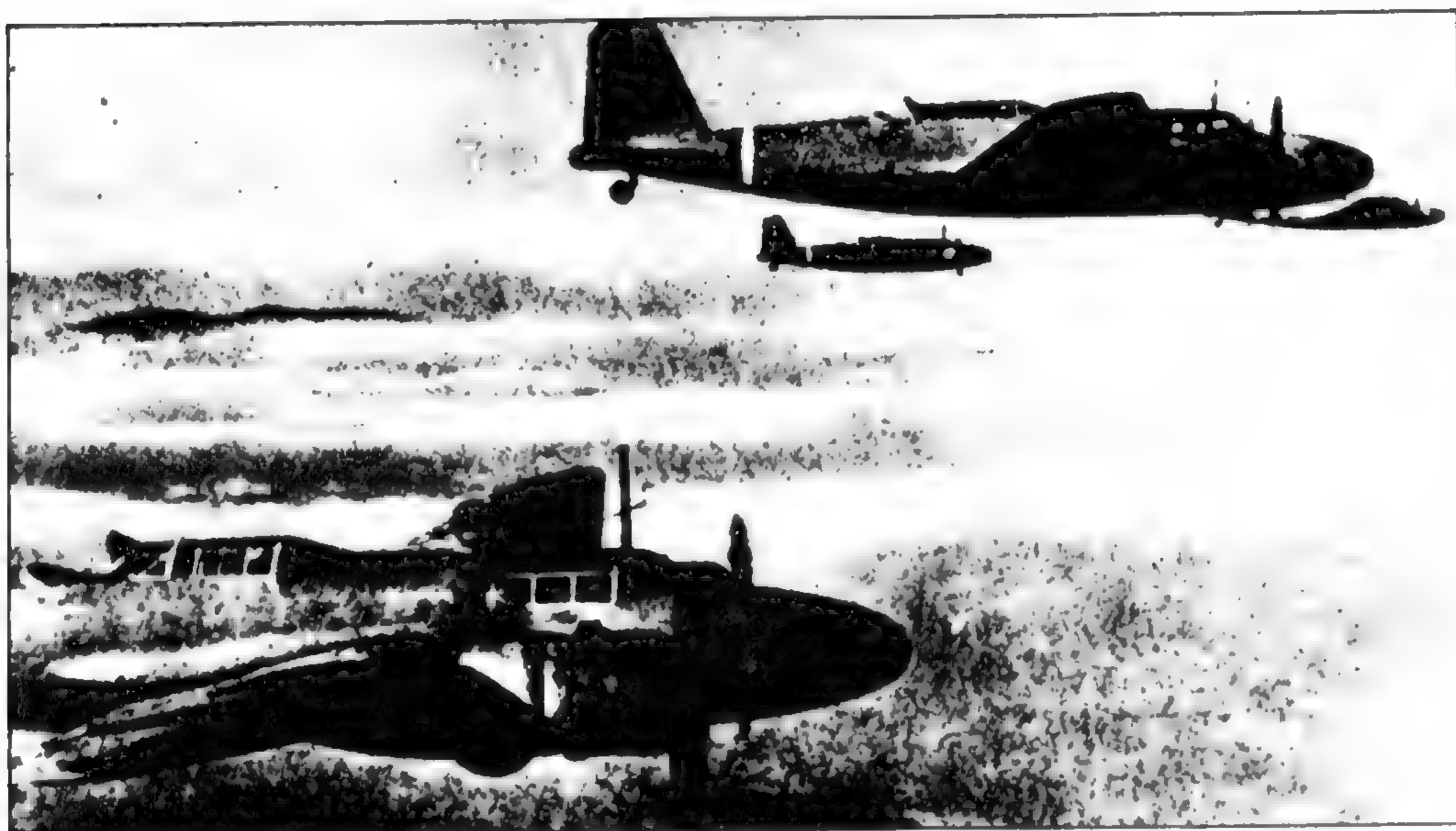
Remarks: In range computations allowance was made for 5-minute warm up and take off and climb to 6,500 feet at maximum rated power.

Tactical Data: This bomber can be used for carrying torpedoes.

TYPE 97 ARMY TWIN ENGINE MEDIUM BOMBER
"SALLY"



SALLY MK 1



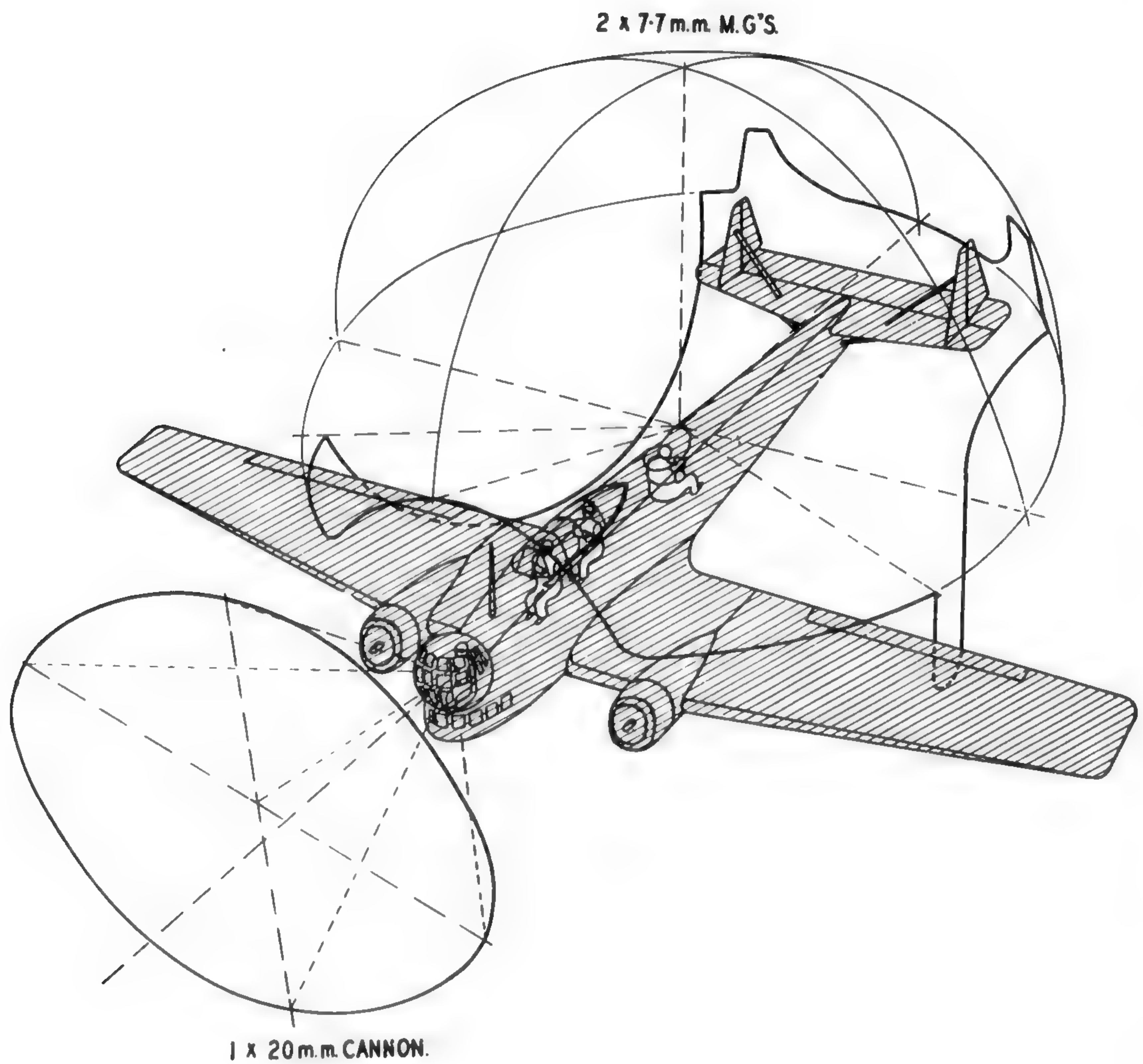
SALLY MK 2



SALLY MK 2

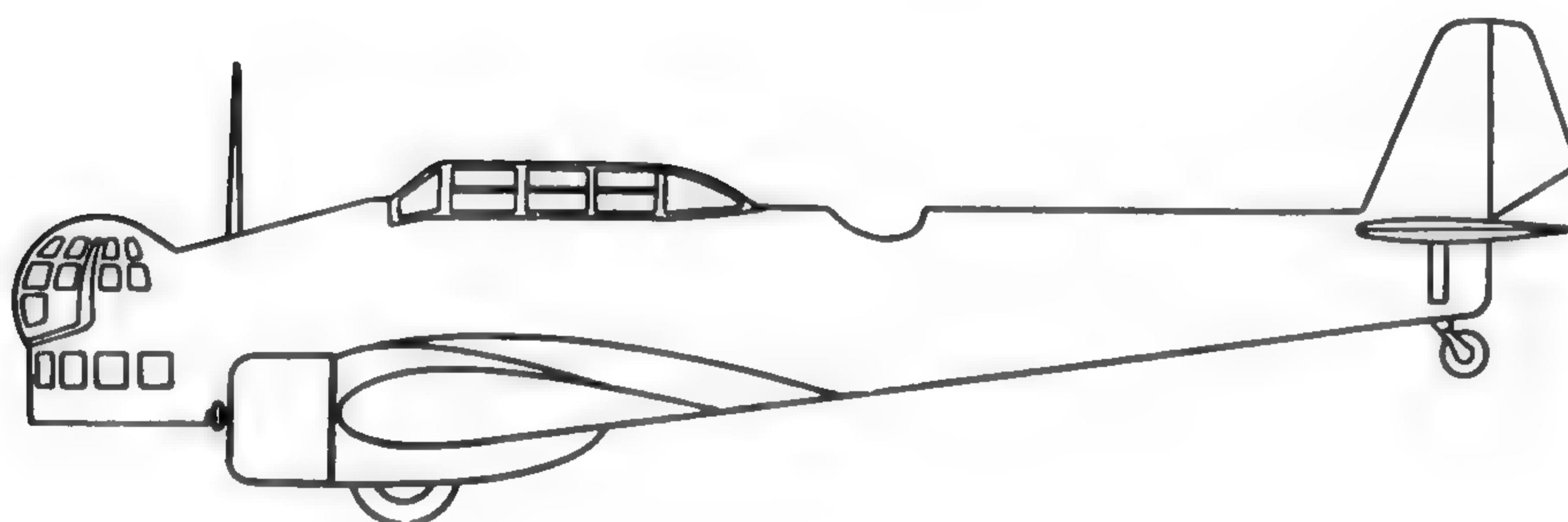
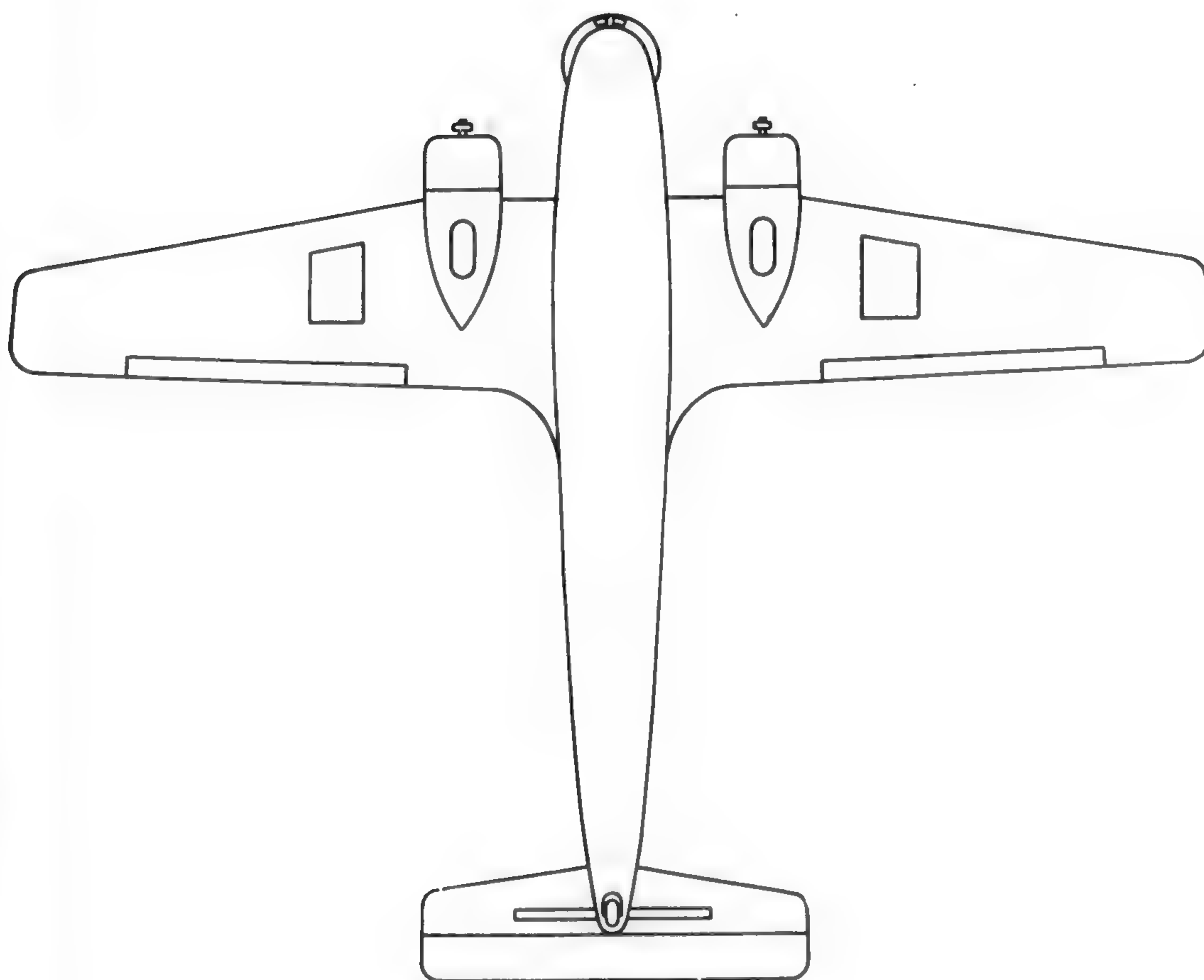
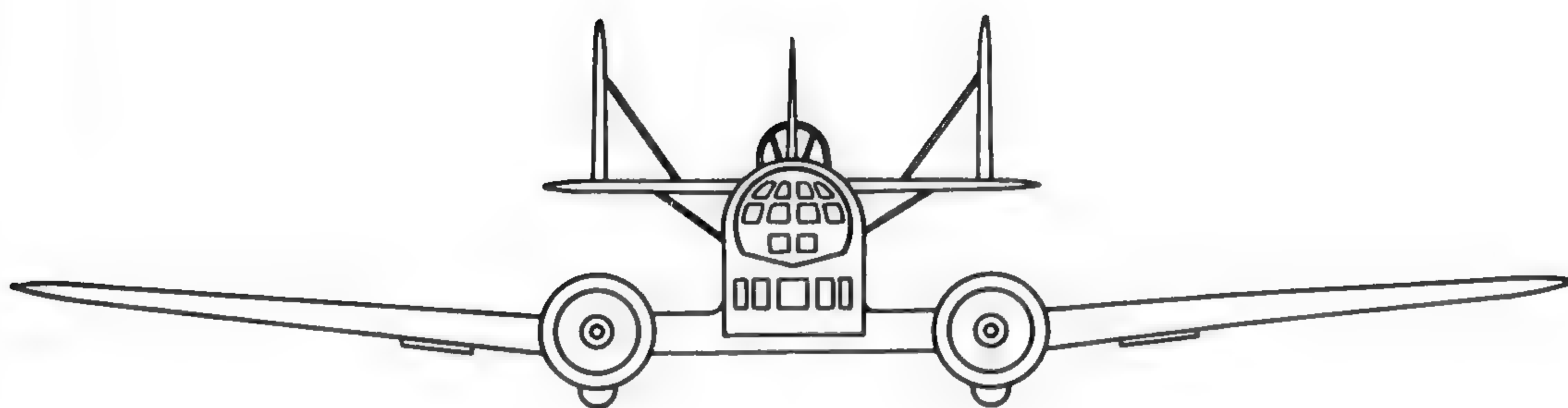
MITSUBISHI TYPE 98 ARMY TWIN ENGINE MEDIUM BOMBER

“LOUISE”



MITSUBISHI TYPE 98 ARMY TWIN ENGINE MEDIUM BOMBER

“LOUISE”



MITSUBISHI TYPE 98 ARMY TWIN ENGINE MEDIUM BOMBER

“LOUISE”

Originally Manufactured by: Mitsubishi

Also Manufactured by:

Crew: Four or five

Engines: Two Mitsubishi radial, air-cooled, developing 750 h.p. at 15,000 ft.

Dimensions: Wing Span 75' 0" Length 59' 0" Height 13' 0"

	Empty	Normal	Full Military Load
<i>Weights:</i>	16,000 lb.	21,000 lb.	

Maximum Speed: 220 miles per hour at 15,000 ft.

Rate of Climb:

Service Ceiling: 23,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U. S. Gal.
<i>Max Bombs</i>					
<i>Normal</i>	1,180	185	2,200 lb.	480	575
<i>Max. Fuel</i>					

Radio:

Armour:

Armament: 1 x 20 mm. cannon in nose.

2 x 7.7 mm. M.Gs., fixed in wings.

2 x 7.7 mm. M.Gs., flexible dorsal.

Ammunition:

Vulnerability: No self-sealing tanks.

Remarks:

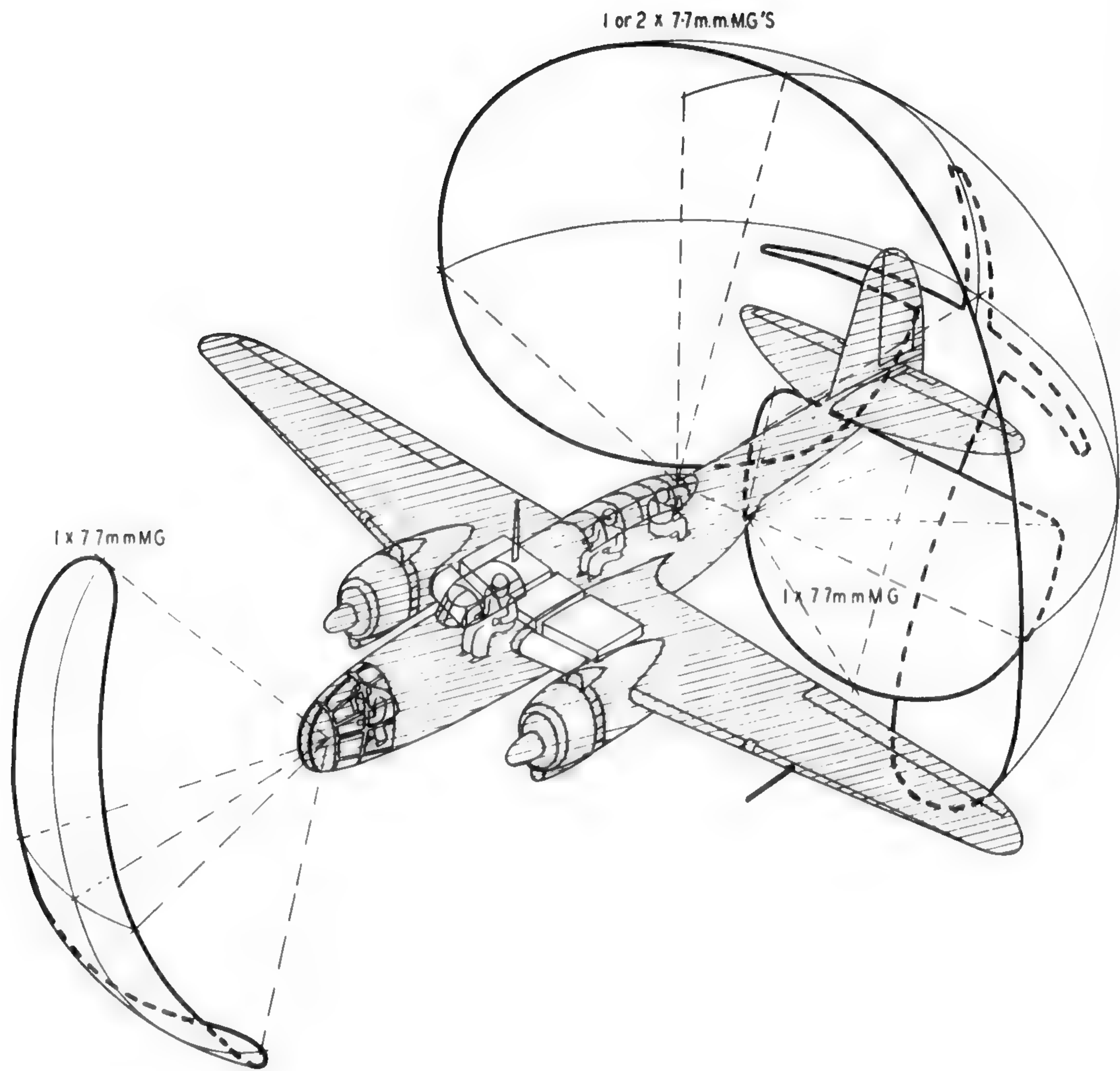
Tactical Data:

MITSUBISHI TYPE 98 ARMY TWIN ENGINE MEDIUM BOMBER

“LOUISE”

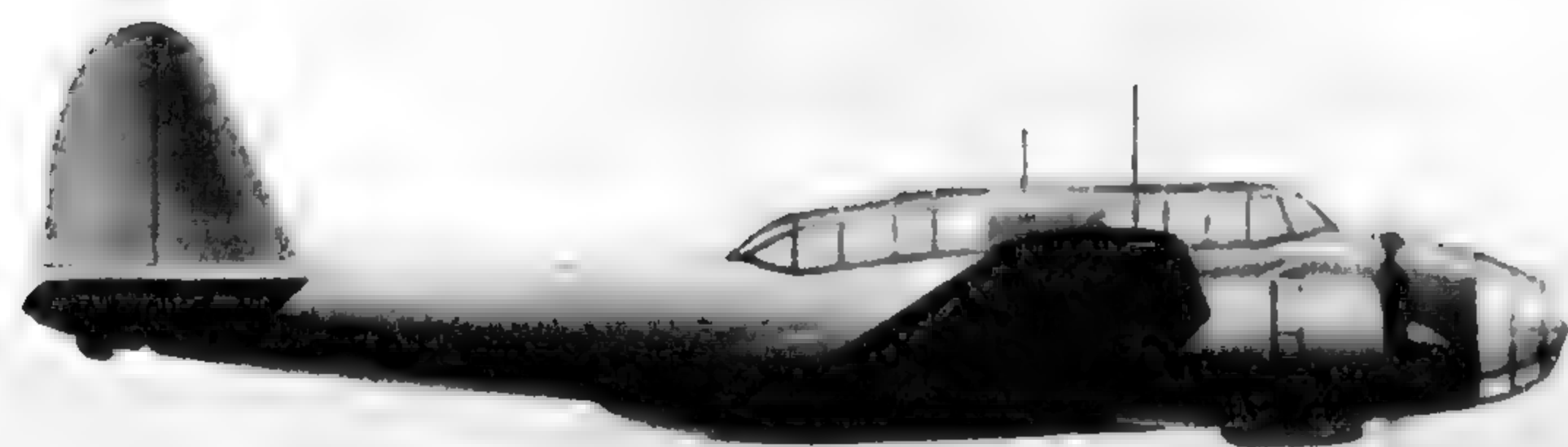


TYPE 99 ARMY TWIN ENGINE MEDIUM BOMBER
"LILY"



TYPE 99 ARMY TWIN ENGINE MEDIUM BOMBER

"LILY"



TYPE 99, ARMY TWIN ENGINE MEDIUM BOMBER

“LILY”

Originally Manufactured by:

Also Manufactured by:

Crew: Three or four.

Engines: Two 14 cylinder, twin-row, radial, air-cooled engines.

Dimensions: Wing Span 57' 3½" Length 41' 10" Height 12' 6".

Empty	Normal	Full Military Load
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Weights:

Maximum Speed: 240 m. p. h., estimated.

Rate of Climb:

Service Ceiling:

RANGE:

Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U. S. Gal.
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Max. Bombs:	1,500 lbs. (Estimated)
-------------	---------------------------

Normal:

Max. Fuel:

Radio:

Armor: None.

Armament: 1 x 7.7 mm., flexible, machine gun in nose.
1 x 7.7 mm. retractable, flexible, ventral machine gun.
2 x 7.7 mm., flexible, machine guns on scarf type mounting,
dorsal.

Ammunition: 100 rounds per gun (estimated).

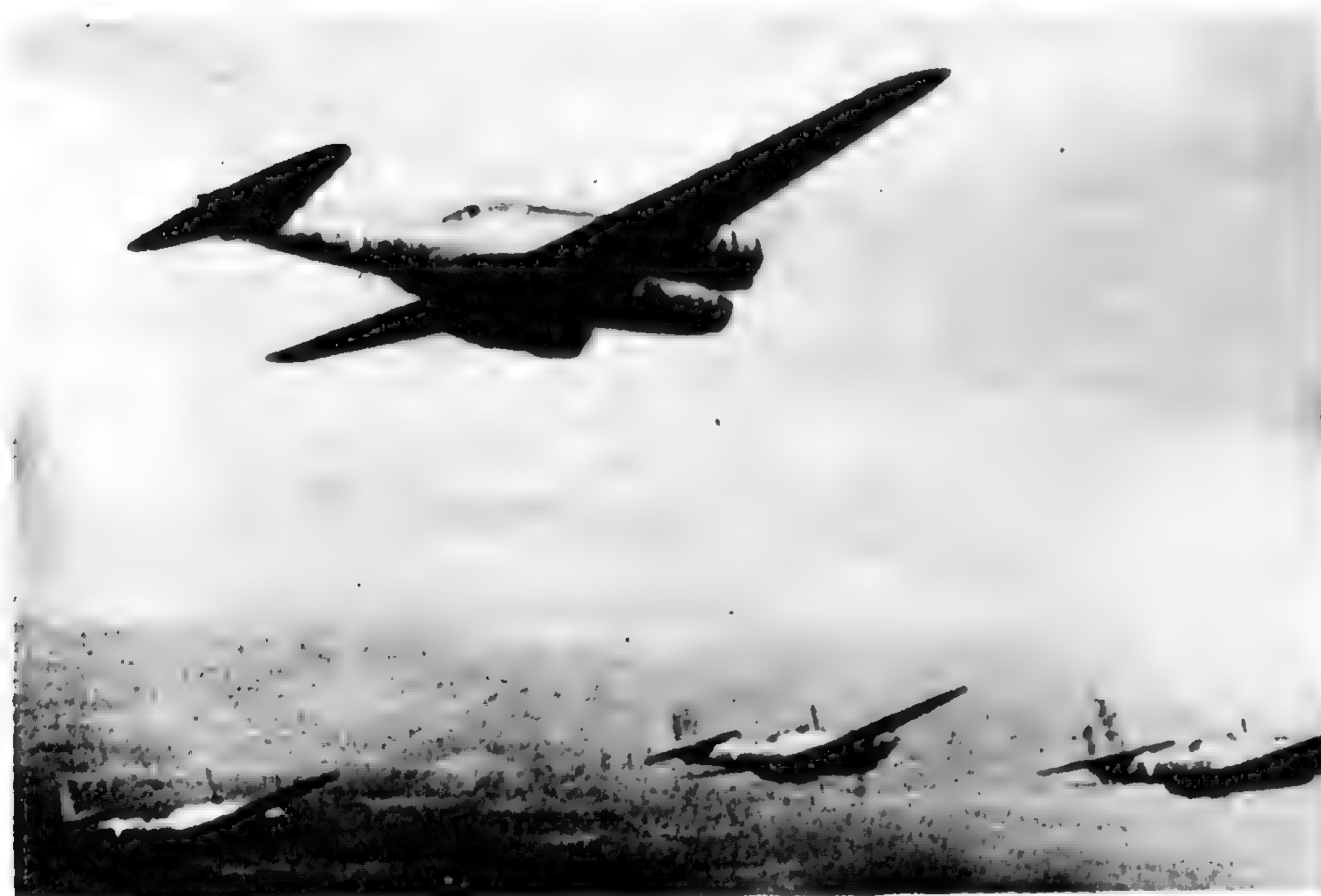
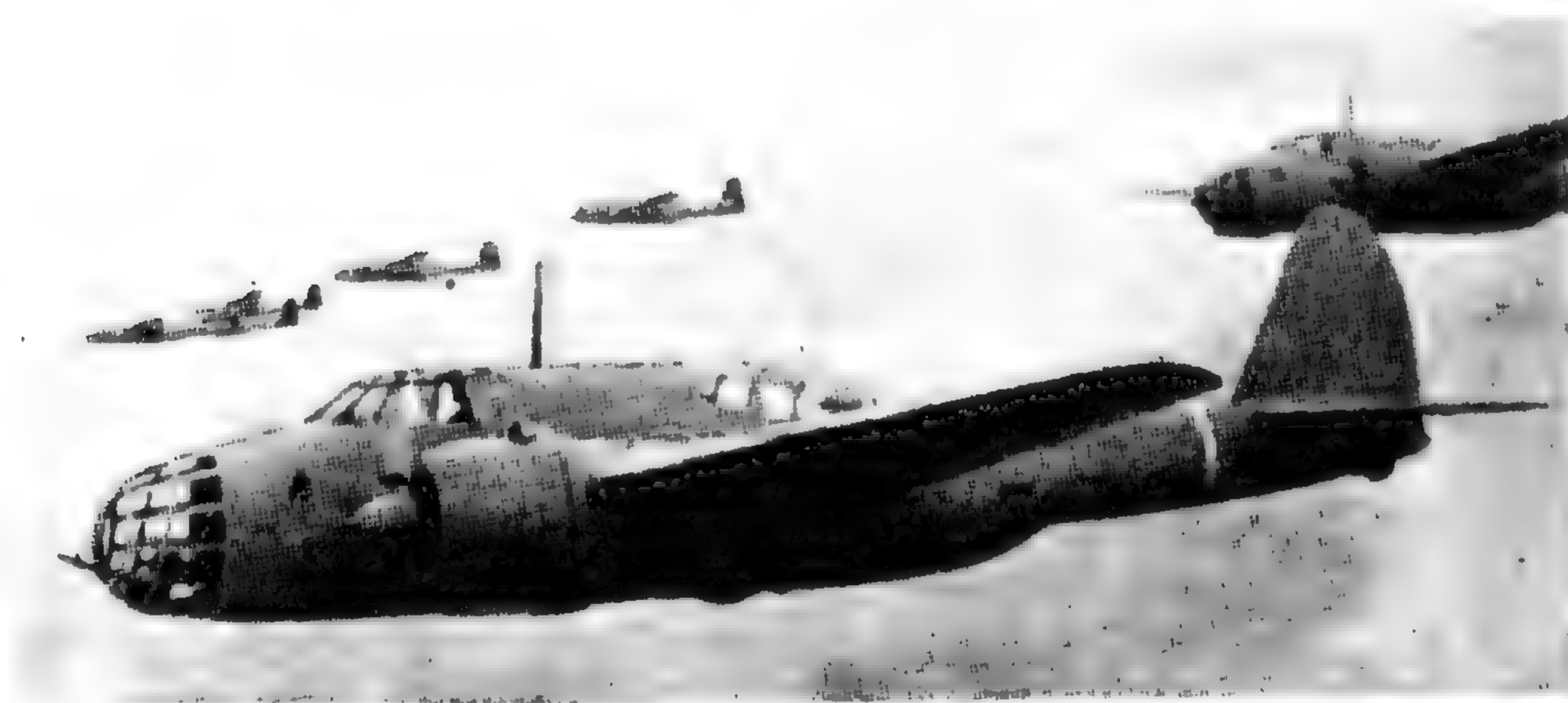
Vulnerability: Tanks may be self-sealing. Three gasoline tanks, one at each wing root and one over bomb bay. Oil tanks next to leading edge, inboard of engine nacelles.

Remarks:

Tactical Data:

TYPE 99, ARMY TWIN ENGINE MEDIUM BOMBER

"LILY"



MITSUBISHI TYPE O ARMY AND NAVY MEDIUM BOMBER

“GWEN”

Originally Manufactured by: Mitsubishi

Also Manufactured by:

Crew:

Engines:

<i>Dimensions:</i>	<i>Wing Span</i>	<i>Length</i>	<i>Height</i>
	<i>Empty</i>	<i>Normal</i>	<i>Full Military Load</i>

Weights:

Maximum Speed: 315 miles per hour at 13,000 ft.

Rate of Climb:

Service Ceiling:

RANGE:

	<i>Range in Statute Miles</i>	<i>Cruising Speed</i>	<i>Bombs (Max.)</i>	<i>Fuel Imp. Gal.</i>	<i>Fuel U.S. Gal.</i>
<i>Max. Bombs</i>					
<i>Normal</i>					
<i>Max. Fuel</i>	1,562				

Radio:

Armour:

Armament:

Ammunition:

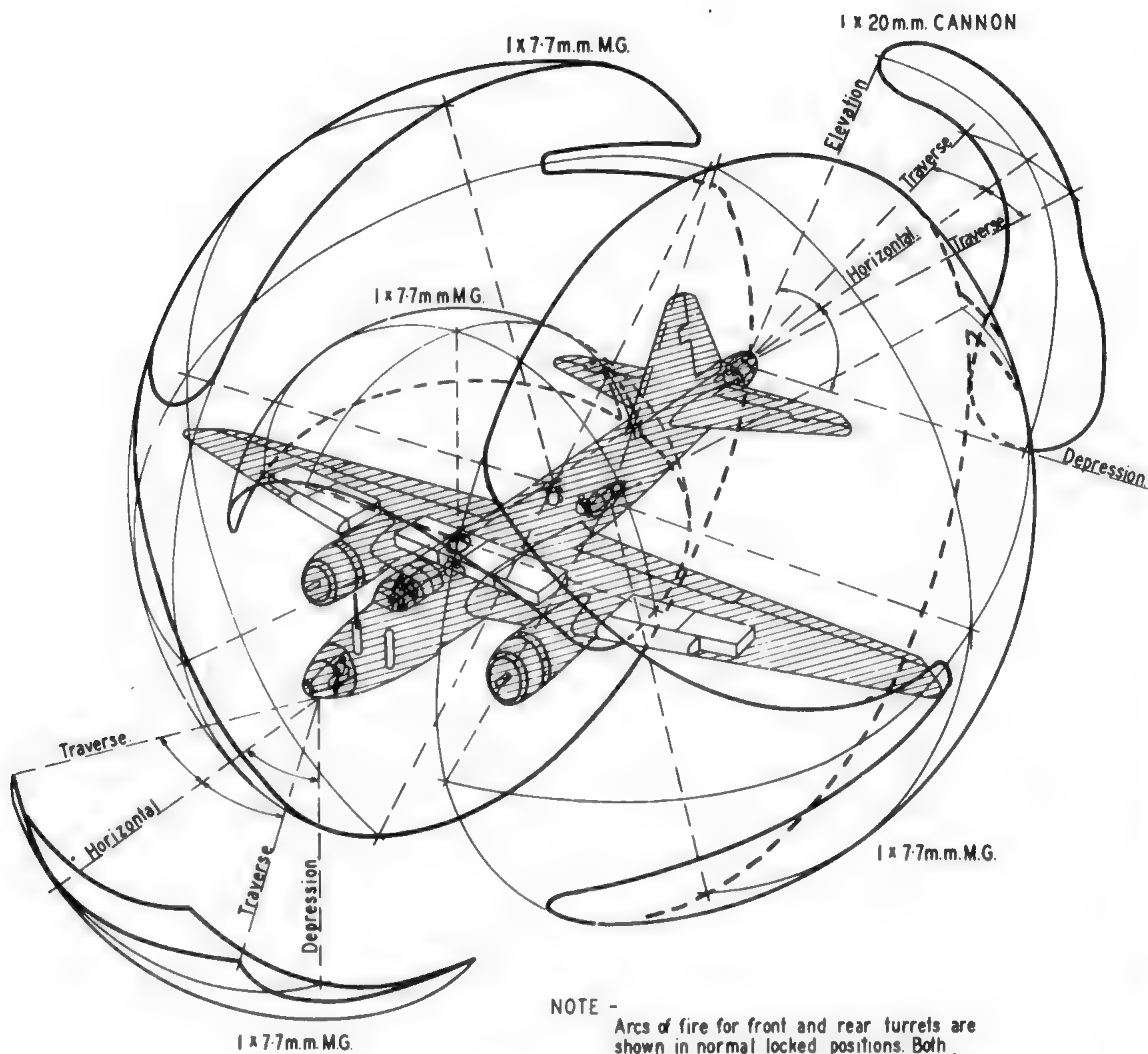
Vulnerability:

Remarks:

Tactical Data:

TYPE I ARMY AND NAVY TWIN ENGINE MEDIUM BOMBER

"BETTY"



TYPE 1 ARMY AND NAVY TWIN ENGINE MEDIUM BOMBER

“BETTY”



TYPE 1 ARMY AND NAVY TWIN ENGINE MEDIUM BOMBER

"BETTY"

Originally Manufactured by: Mitsubishi.

Also Manufactured by:

Crew: Seven to nine.

Engine: 2 Kasei Model 11 or 15, 14 cylinder, twin row radial, air cooled engines with two speed superchargers. Maximum rating, Kasei 11—
 1,480 h. p. at take off.
 1,480 h. p. at 7,200 ft.
 1,300 h. p. at 13,200 ft.

Dimensions: Wing span 82' 0" Length 65.6' Height, level 19.7'
 Wing area 838 sq. ft.

Weights: Empty 14,900 lbs. Normal Bomber 27,000 lbs. Max. Fuel (no bombs) 27,000 lbs.

Maximum Speed: 247 m. p. h. at sea level 276 m. p. h. at 15,000 ft.

Rate of Climb: 1,485 ft. per min. at sea level
 1,210 ft. per min. at 13,200 ft.

Service Ceiling: 28,800 ft.

RANGE:

Condition	Miles	Speed M.P.H.	Altitude Feet	Bombs	Fuel U.S.Gal.
Normal bomber, 90% Vm.	1,370	245	7,200	12-60-kg. bombs or 1 800-kg. torpedo	1,300
Normal bomber, Max. Range	3,025	151	7,200	"	1,300
Extra Fuel, 90% Vm.	1,660	246	7,200	None	1,554
Extra fuel, Max. Range	3,700	116	7,200	"	1,554

Radio: Equipped with a twin W/T and a separate R/T, also a radio compass.

Armor: None except in some cases two ineffective, very light and small plates in the rear gunner's position.

Armament: 1 x 7.7 mm. machine gun in the nose.
 1 x 7.7 mm. machine gun in the top turret.
 1 x 7.7 mm. machine gun in each side blister.
 1 x 20 mm. cannon in the tail.

Reports have also indicated a belly gun, possible two, firing from what seems to be a chute. These are 7.7 mm. and appear to be fixed, firing into the blind spot beneath the tail.

Ammunition: 300 rounds for each 7.7 mm. machine gun.
 90 rounds for the 20 mm. cannon.

Remarks: This aircraft is modified for use on reconnaissance missions. For this purpose, the armament is removed, except for one or two guns.

On flights in combat zones the bomb bay doors are apparently removed. The performance figures given above are calculated assuming that the bomb bay doors are open.

Fuel tanks are in the wings and fuselage and in various versions of this aircraft from 8 to 12 tanks are used.

In some of the later models of this aircraft the engines are Kasei Model 15. This model engine is apparently very similar to the Kasei Model 11 except for the type of fuel used. The Model 11 uses 100 octane gasoline for take off and 92 octane for cruising, whereas the Model 15 uses 92 octane for take off and 87 octane for cruising. The horsepower rating of the Model 15 is not available.

Vulnerability: The fuel tanks are equipped with a self-sealing covering of rubber but it is thought to be rather ineffective.

Tactical Data: In addition to its use as a bomber and reconnaissance plane, BETTY is also used to carry torpedoes. It is reported to be possible to load it with one standard Japanese 800 kg. torpedo or as many as 3 smaller torpedoes. If the standard size torpedo is used, only one can be carried.

TYPE 1 ARMY AND NAVY TWIN ENGINE MEDIUM BOMBER

“BETTY”



TYPE 1 ARMY AND NAVY TWIN ENGINE MEDIUM BOMBER

“BETTY”



NAKAJIMA TYPE 1 ARMY TWIN ENGINE MEDIUM BOMBER
"JOYCE"

Originally Manufactured by: Nakajima

Also Manufactured by:

Crew: Two

Engines: Two Igo radials, 500 or 600 h.p. each.

<i>Dimensions:</i>	<i>Wing Span</i>	<i>Length</i>	<i>Height</i>
	<i>Empty</i>	<i>Normal</i>	<i>Full Military Load</i>

Weights:

Maximum Speed: 362 miles per hour at 15,000 ft.

Rate of Climb:

Service Ceiling:

RANGE:

	<i>Range in Statute Miles</i>	<i>Cruising Speed</i>	<i>Bombs (Max.)</i>	<i>Fuel Imp. Gal.</i>	<i>Fuel U.S. Gal.</i>
<i>Max. Bombs</i>					
<i>Normal</i>					
<i>Max. Fuel</i>					

Radio:

Armour:

Armament:

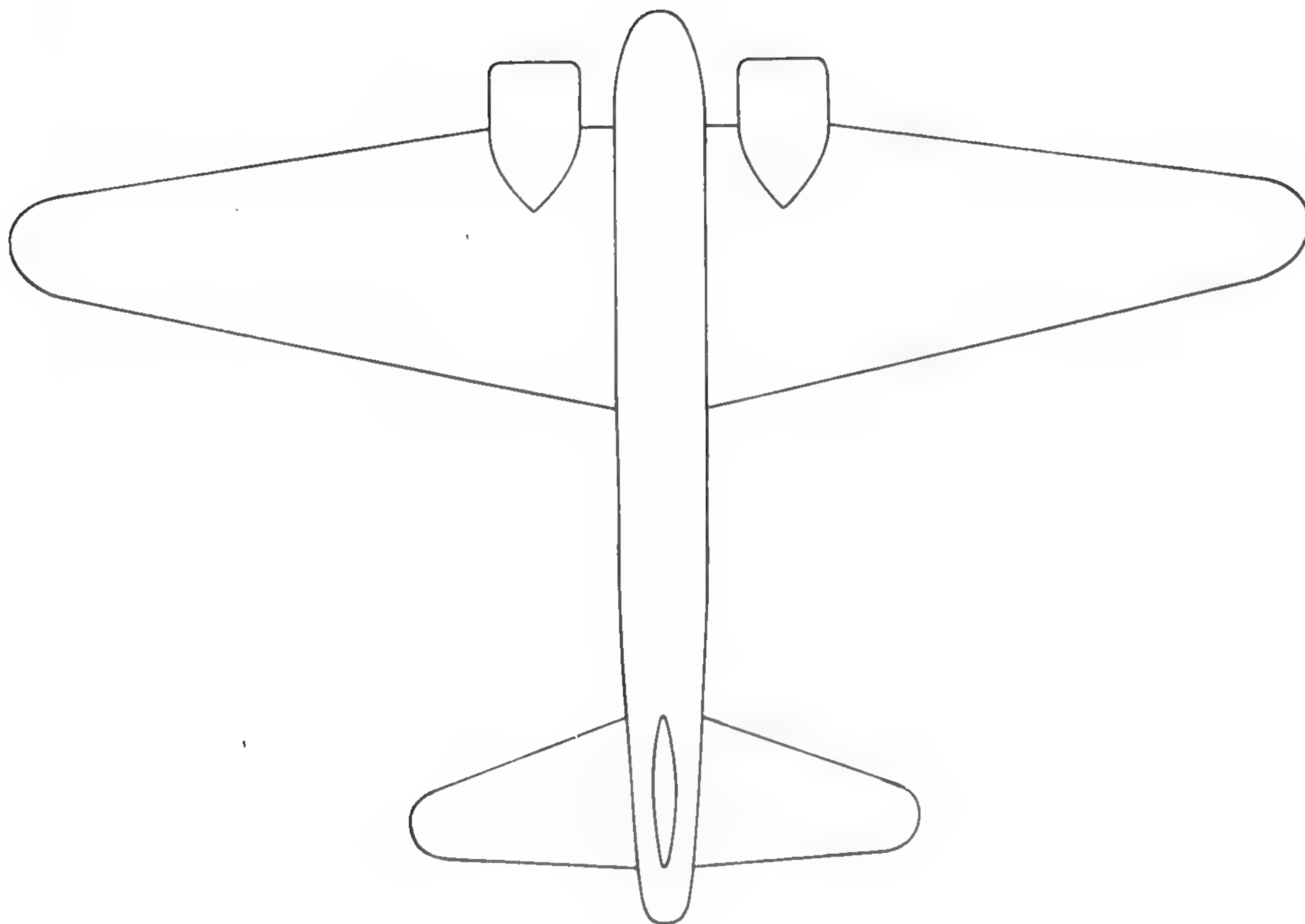
Ammunition:

Vulnerability:

Remarks: ME 110 type aircraft.

Tactical Data:

TYPE ARMY AND NAVY MEDIUM BOMBER
"DORIS"



TYPE ARMY AND NAVY MEDIUM BOMBER
"DORIS"

Originally Manufactured by:
Also Manufactured by:
Crew:
Engines:
Dimensions: Wing Span 80' Length 56' Height
Empty Normal Full Military Load
Weights:
Maximum Speed:
Rate of Climb:
Service Ceiling:

RANGE:					
	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>					
<i>Normal</i>					
<i>Max. Fuel</i>					

Radio:

Armour.

Armament:

Ammunition:

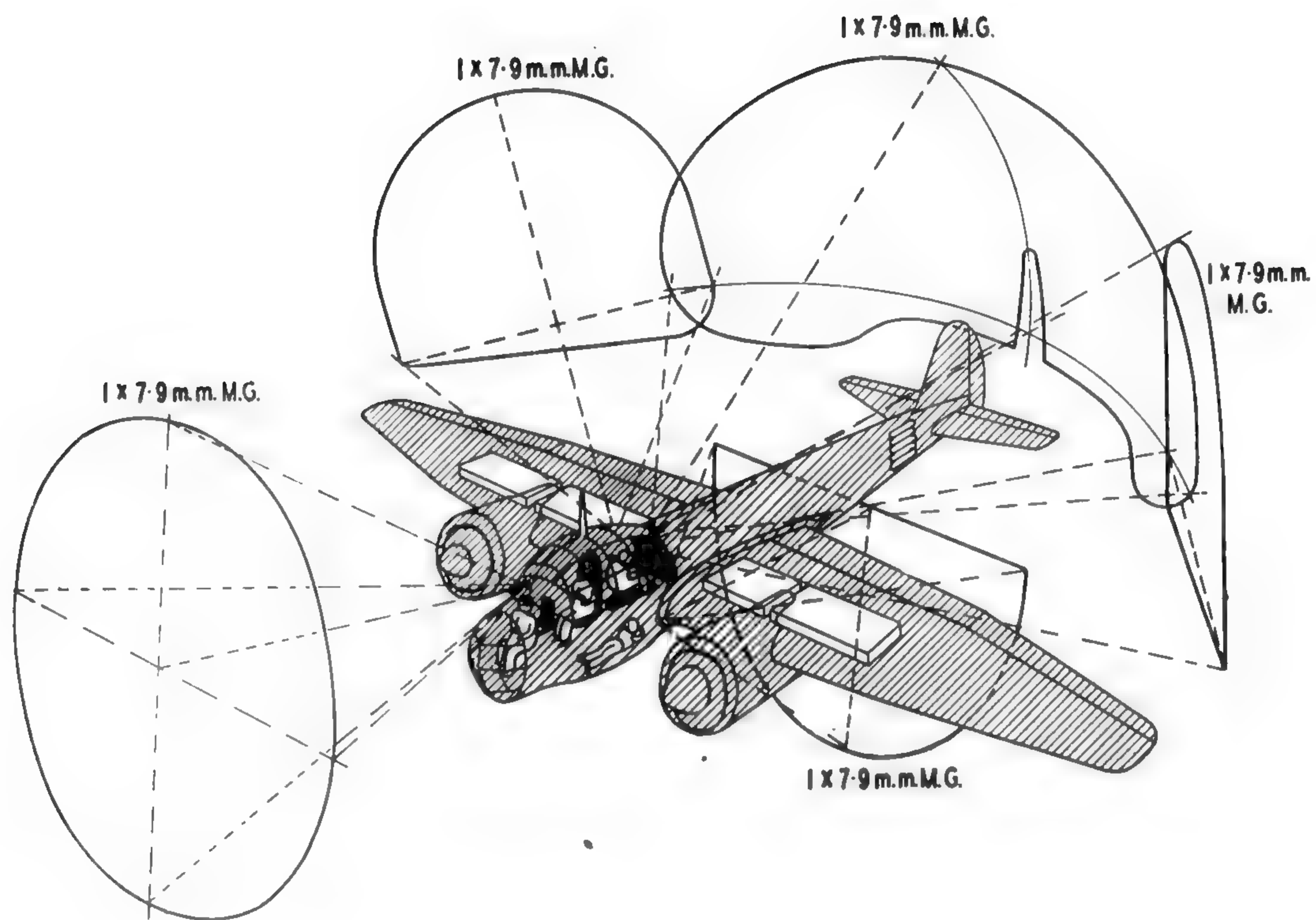
Vulnerability:

Remarks:

Tactical Data:

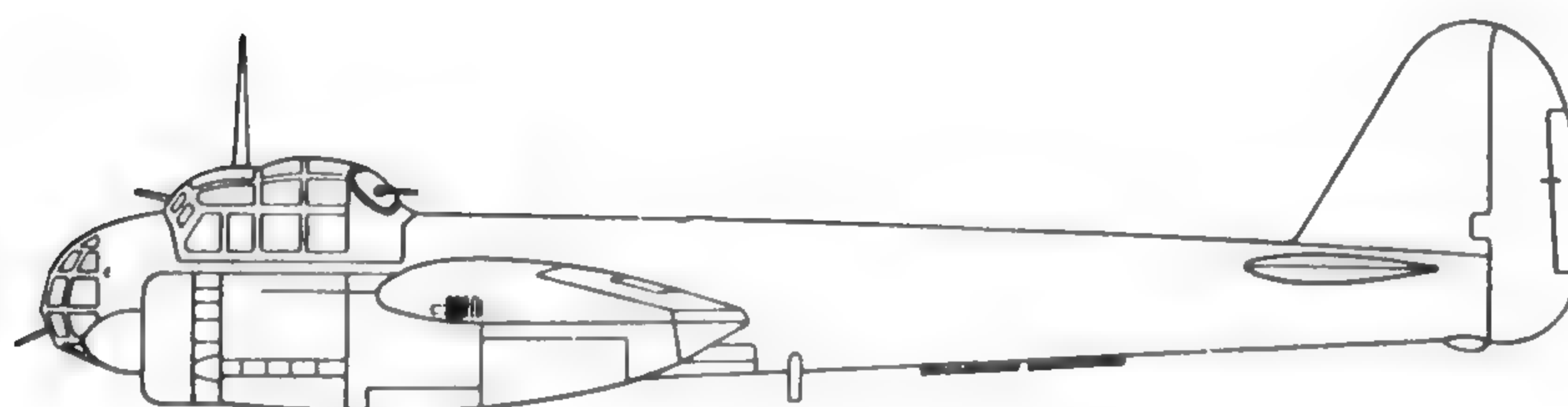
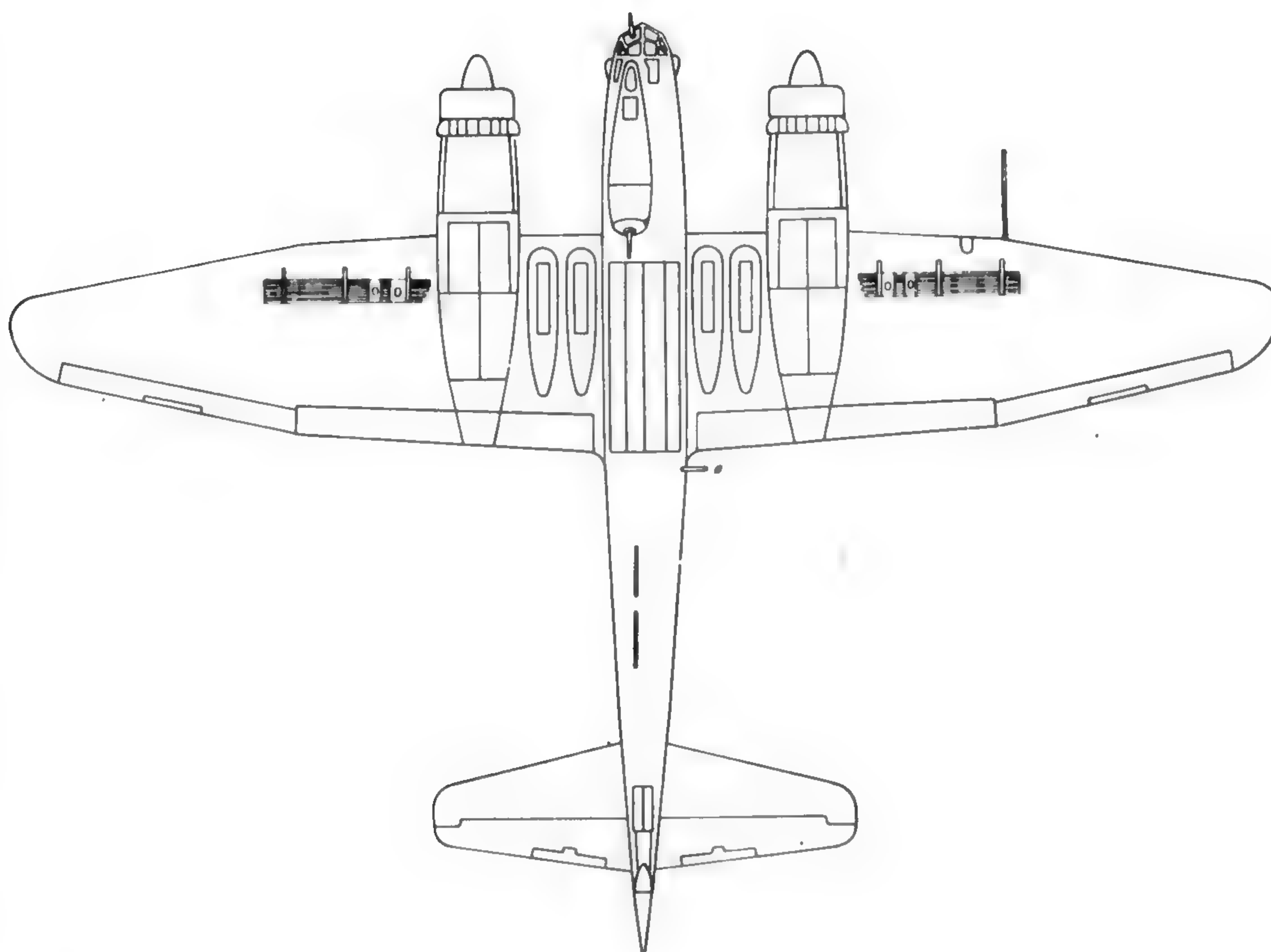
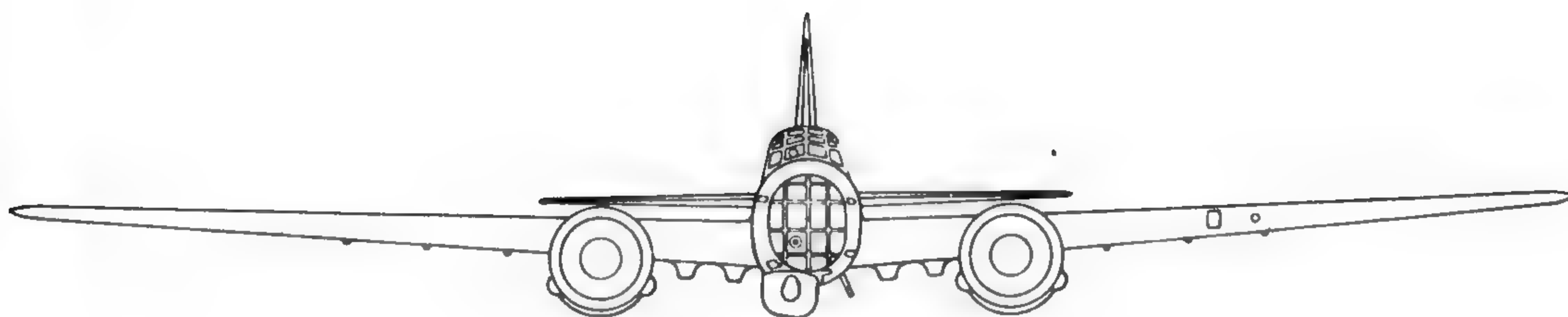
JUNKERS 88 ARMY TWIN ENGINE MEDIUM BOMBER

"JANICE"



JUNKERS 88 ARMY TWIN ENGINE MEDIUM BOMBER

"JANICE"



JUNKERS 88 ARMY TWIN ENGINE MEDIUM BOMBER

"JANICE"

Originally Manufactured by: Junkers

Also Manufactured by:

Crew: Three or four

Engines: Two Jumo 211J, 12-cylinder inverted "V" liquid-cooled engines, developing 1,260 h.p. each at 12,500 ft.

Dimensions: Wing Span 66' Length 47' Height 16'

	Empty	Normal	Full Military Load
<i>Weights:</i>	19,500 lbs.	29,300 lbs.	29,300 lbs.

Maximum Speed: 300 miles per hour at 14,000 ft. (max. emergency)

Rate of Climb: To 15,000 ft. in 27 minutes with load.

Service Ceiling: With load, 19,500 ft.; Without load, 30,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Bombs</i>	790	210	6,400 lbs.	370	445
<i>Normal</i>	1,130	255	4,500 lbs.	590	711
<i>Max. Fuel</i>	2,280	210	1,100 lbs.	990	1,193

Radio: Two transmitters, 5 receivers, telephonic intercommunication between crew.

Armour: Pilot's seat—5 to 8mm.; Dorsal—5 to 8mm.; Ventral—5mm. to 10mm. slats.

Armament: Forward fuselage—1 or 2 x 7.9mm. M.Gs., and occasionally 1 x 20 mm. cannon, flexible.

Dorsal—2 x 7.9mm. M.Gs., flexible.

Lateral—Provision for 7.9mm. M.G., flexible, on star-board side.

Ventral—1 or 2 x 7.9mm. M.Gs., flexible.

Ammunition:

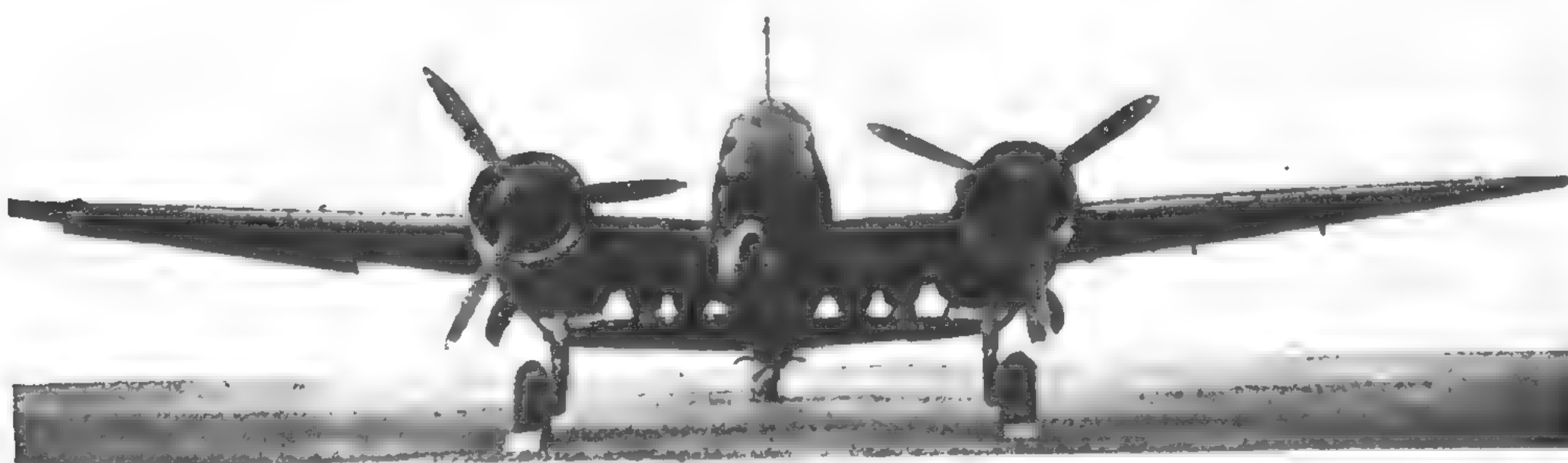
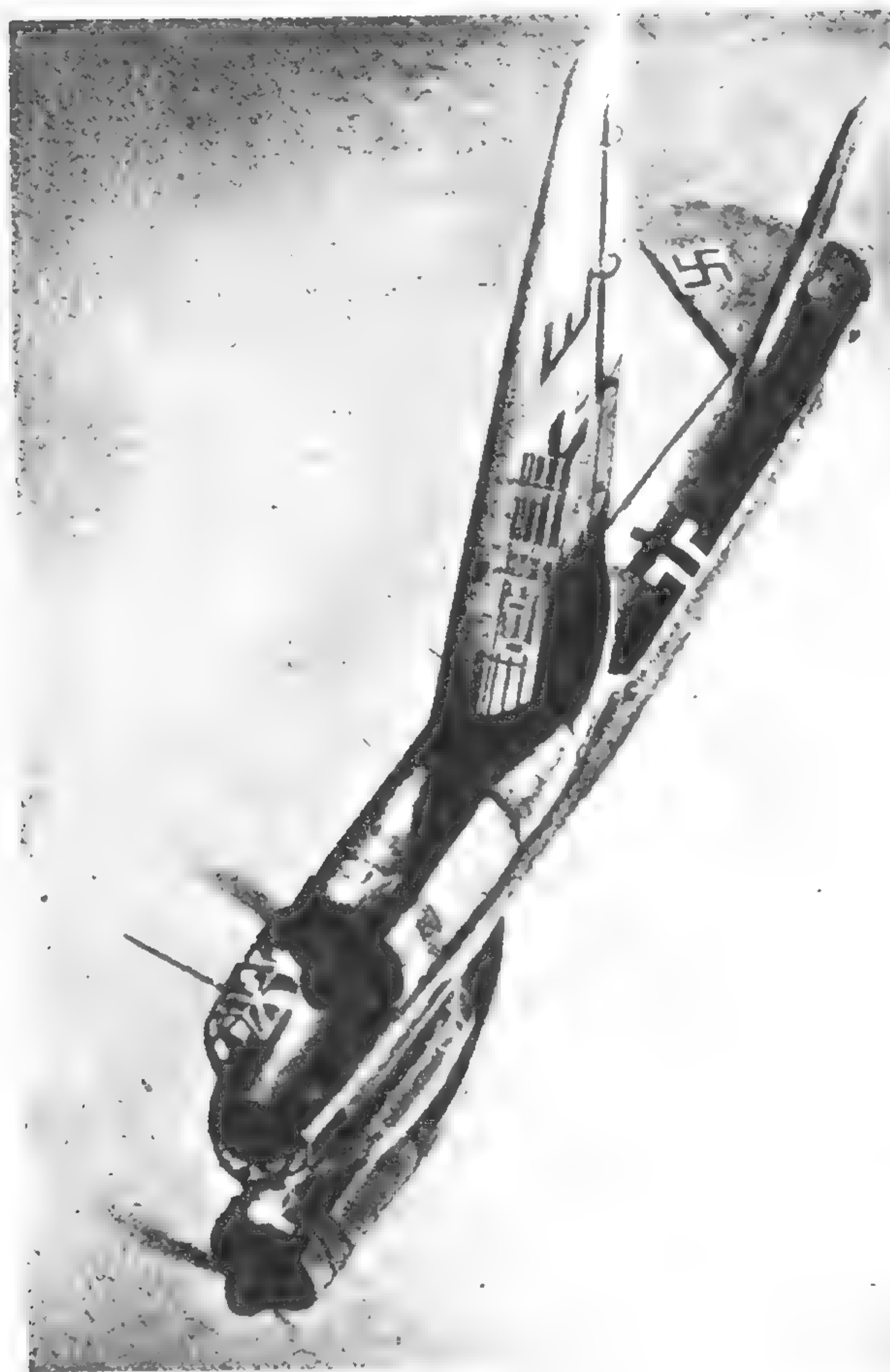
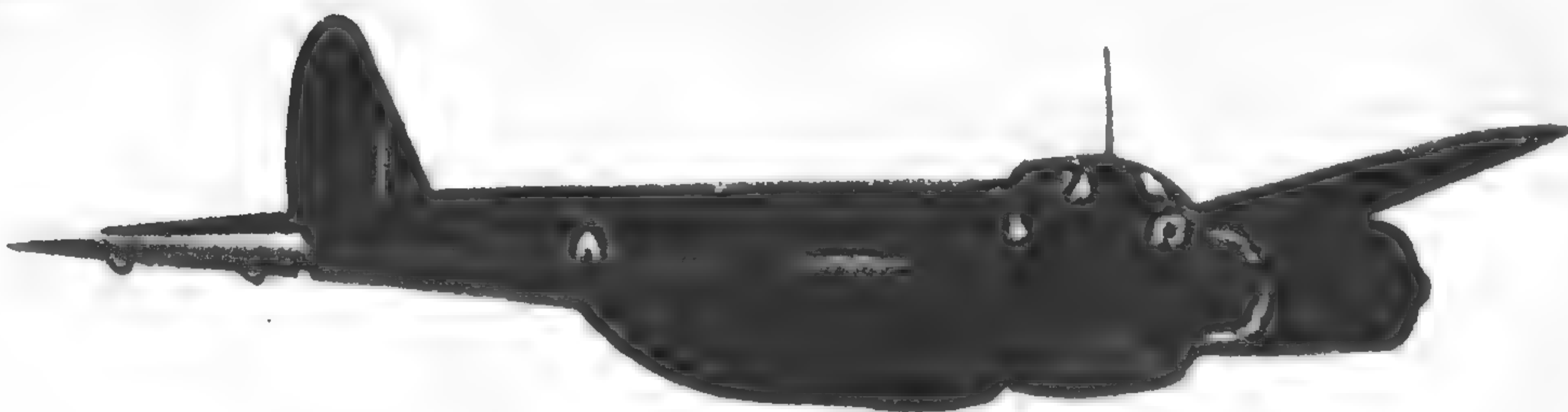
Vulnerability:

Remarks: Tanks are self-sealing on German model.

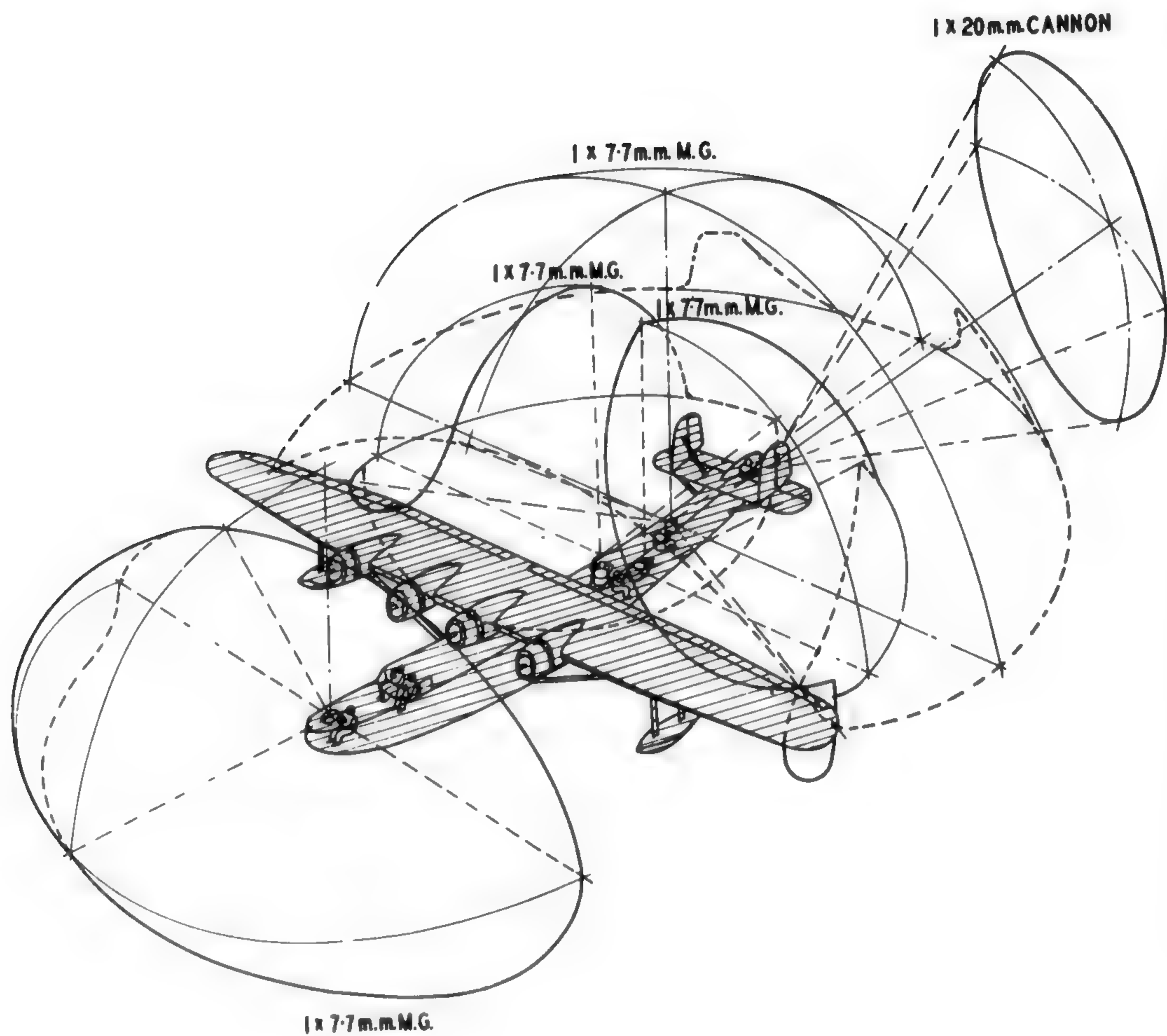
Tactical Data:

JUNKERS 88 ARMY TWIN ENGINE MEDIUM BOMBER

"JANICE"

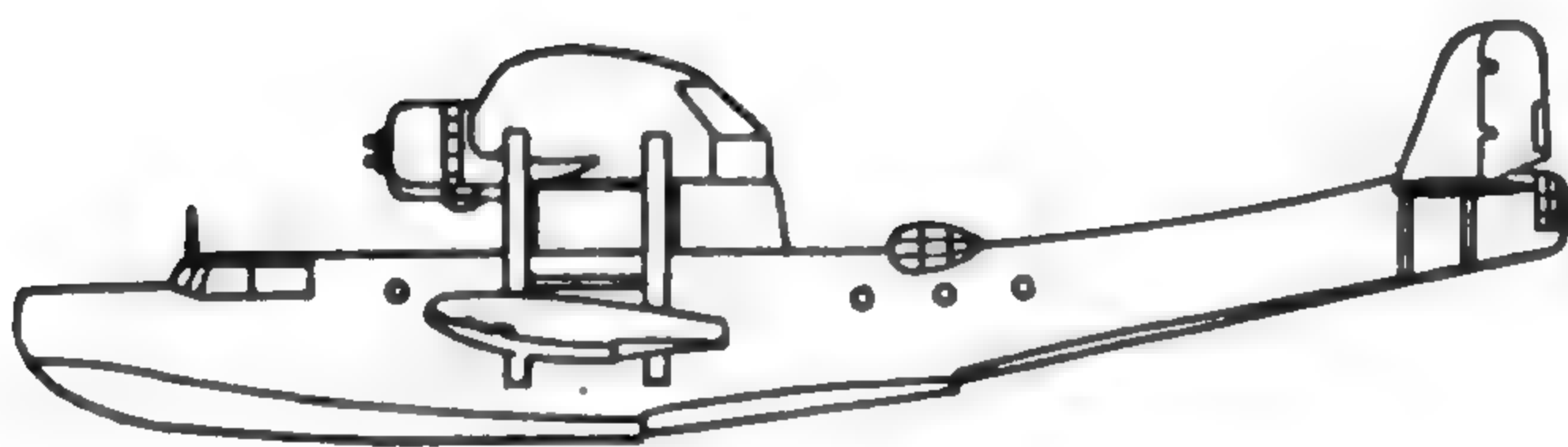
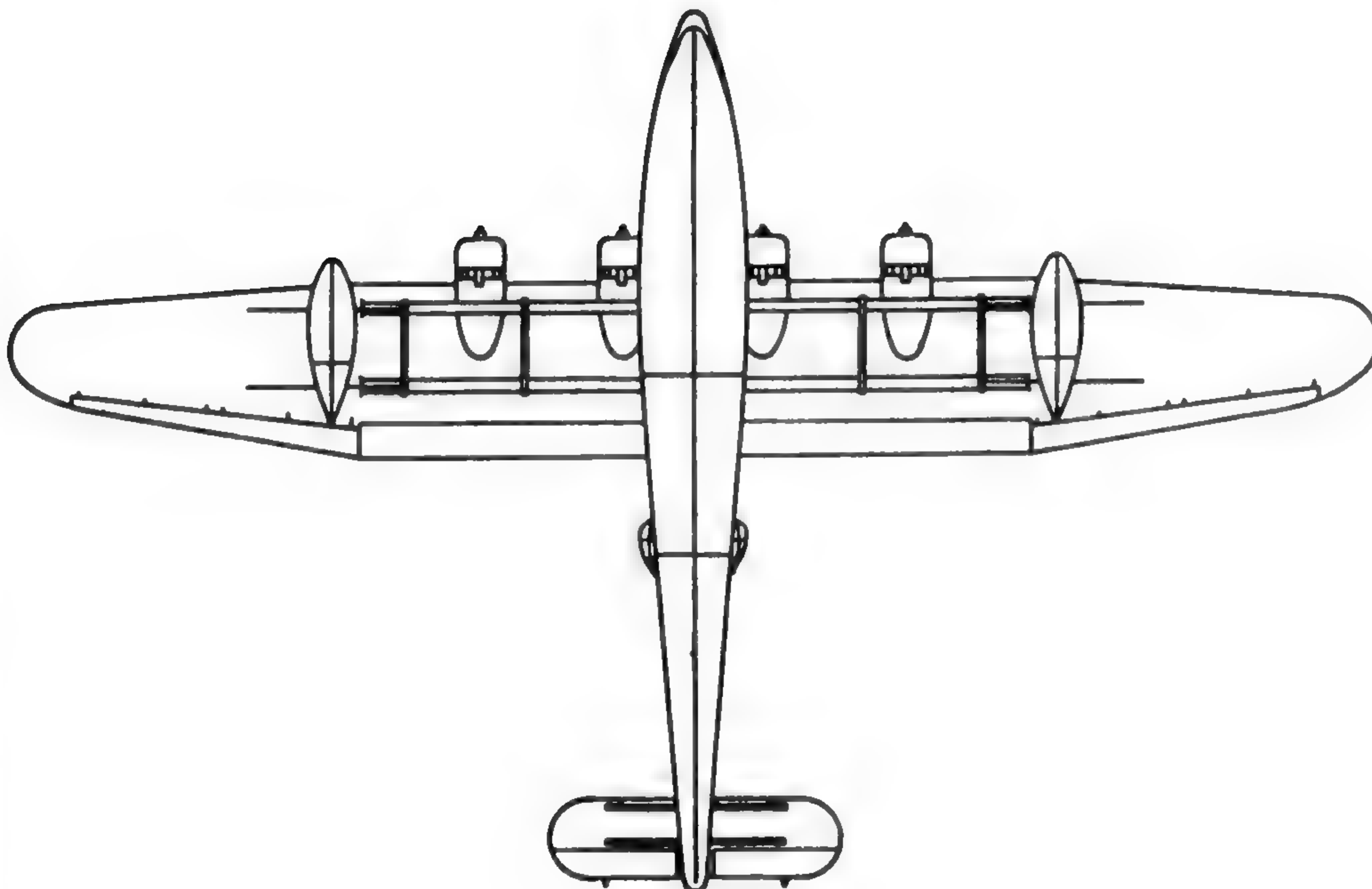
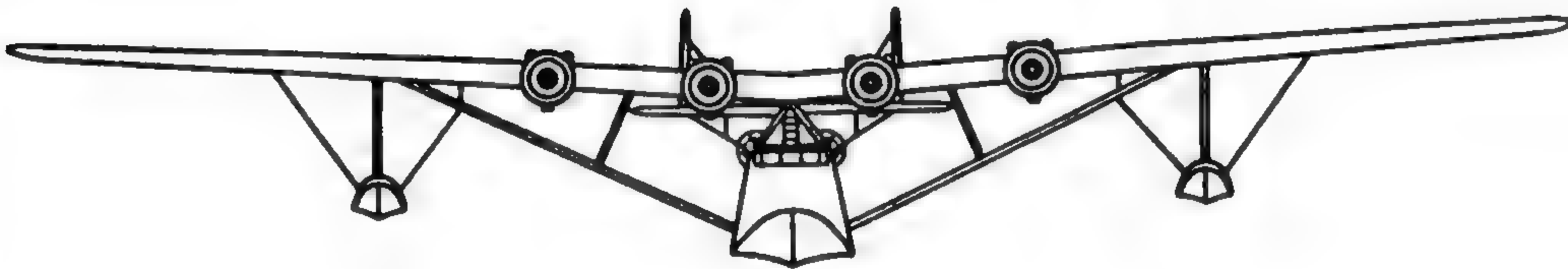


TYPE 97 NAVY FOUR ENGINE FLYING BOAT
"MAVIS"



TYPE 97 NAVY FOUR ENGINE FLYING BOAT

"MAVIS"



TYPE 97 FOUR ENGINE FLYING BOAT

"MAVIS"

Originally Manufactured by: Kawanishi.

Also Manufactured by:

Crew: Eight to ten.

Engines: 4 Mitsubishi Kinsei 46 (or 43) 14 cylinder, twin-row, air-cooled, radial engines. Single speed supercharger. Maximum horse-power ratings (Kinsei 46):
985 h. p. at take off.
1,060 h. p. at 13,800 ft.

Dimensions: Wing span 131' 0" Length 84' 6" Height 20.6'
Wing area 1,776 sq. ft.

	Empty	Patrol (No Bombs)	Patrol Overload (No Bombs)	Torpedo Bomber
Weights:	25,607 lbs.	39,646 lbs.	50,546 lbs.	43,146 lbs.
Maximum Speed:		At Sea Level		At 15,000 ft.
Patrol		210 m. p. h.		239 m. p. h.
Patrol overload		208 m. p. h.		236 m. p. h.
Torpedo bomber		207 m. p. h.		237 m. p. h.
Rate of Climb:		At Sea Level		At 13,800 ft.
Patrol		1,280 ft. per min.		1,440 ft. per min.
Patrol overload		850 ft. per min.		910 ft. per min.
Torpedo bomber		1,120 ft. per min.		1,230 ft. per min.
Service Ceiling:		Patrol, 28,900 ft.		
		Patrol overload, 25,100 ft.		
		Torpedo bomber 27,700 ft.		

RANGE:

Condition	Speed Miles M. P. H.	Altitude Feet	Bombs	Fuel U. S. Gal.
Patrol, 90% Vm.	1,050 213	13,800	None	1,690
Patrol, Max. Range	2,660 118	13,800	None	1,690
Patrol overload, 90% Vm.	2,180 210	13,800	None	3,510
Patrol overload, Max. Range	5,060 126	13,800	None	3,510
T/B, 90% Vm.	1,020 211	13,800	3,520 lbs.	1,690
T/B, Max. Range	2,360 127	13,800	3,520 lbs.	1,690

Radio: Probably long-range W/T and R/T on medium and high frequency.
Radio compass installed.

Armor: None.

Armament: 1 x 7.7 mm. machine gun in nose.
2 x 7.7 mm. machine guns lateral, one in each blister.
1 x 7.7 mm. machine gun in dorsal hatch.
1 x 20 mm. cannon in tail turret.

Ammunition: 300 rounds for each 7.7 mm. machine gun and 60 rounds for the 20 mm. cannon.

Bombs: Two 1,760-lb. torpedoes are reported to be carried. Alternate bomb stowages: 4 x 1,100-lb. or 6 x 550-lb. bombs.

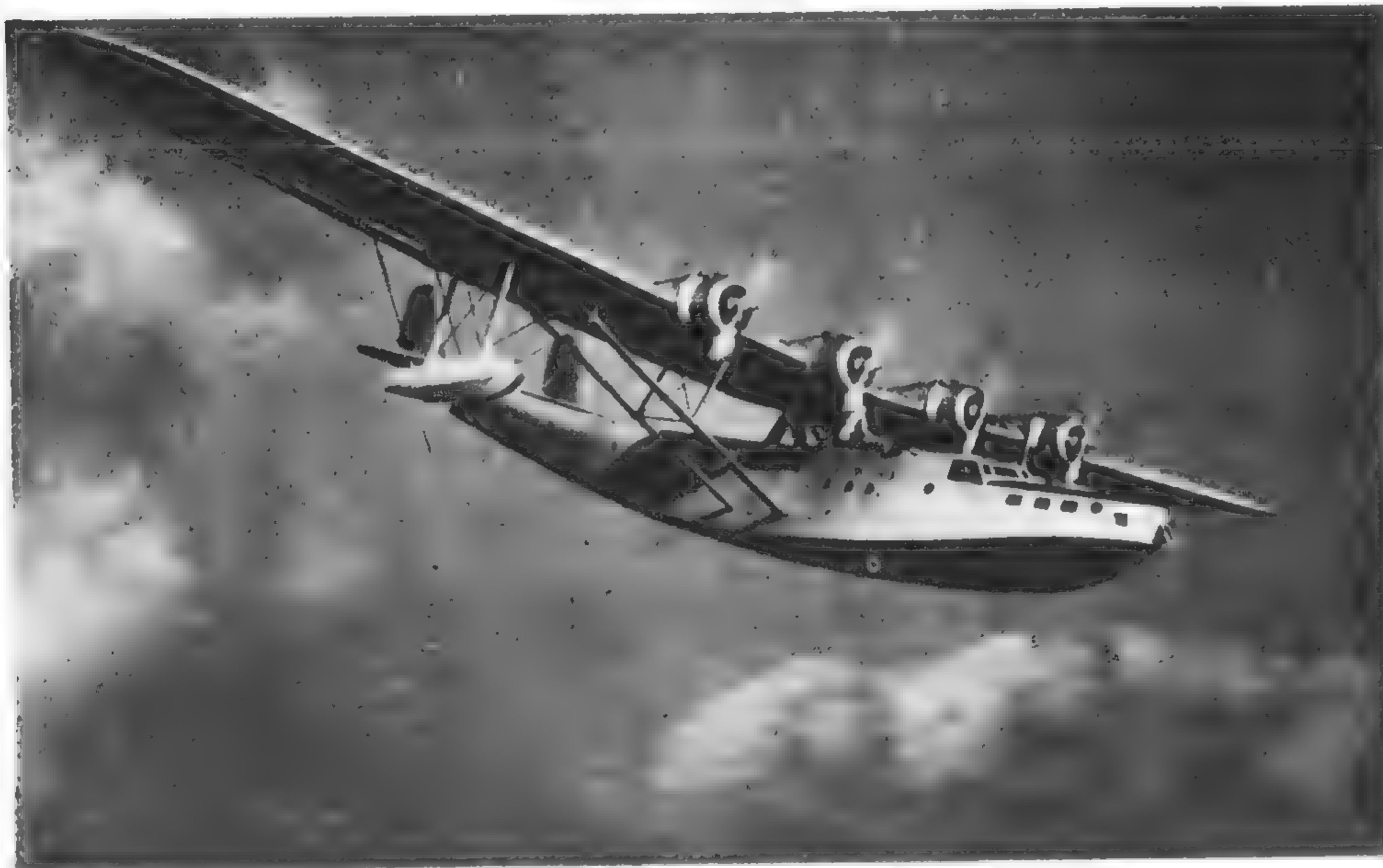
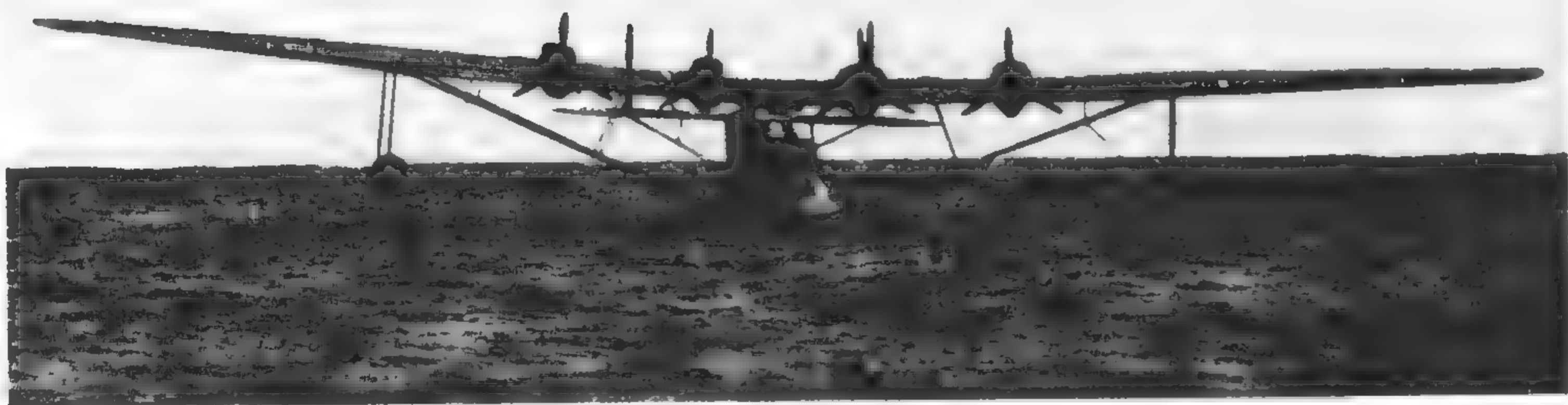
Vulnerability: No protection is provided for crew, fuel tanks or engines.

Remarks: Range computed with fuel allowance for 5 minutes operation at rate T. O. power plus rated power climb to 13,800 ft.

Tactical Data:

TYPE 97 NAVY FOUR ENGINE FLYING BOAT

"MAVIS"



AICHI TYPE 98 NAVY SINGLE ENGINE FLYING BOAT

"LAURA"

Originally Manufactured by: Aichi

Also Manufactured by:

Crew: Three

Engines: One Aichi Type 9, 500 h.p.

Dimensions: Wing Span 49' 2" Length 36' 1" Height 14' 9"

Empty Normal Full Military Load

Weights:

Maximum Speed: 140 m. p. h.

Rate of Climb:

Service Ceiling: 14,500 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Bombs (Max.)	Fuel Imp. Gal.	Fuel U. S. Gal.
Max. Bombs					
Normal					
Max. Fuel	1,100	80 m. p. h.			

Radio:

Armour:

Armament: 1 x 7.7 mm. M.G. (flexible) forward dorsal

Ammunition:

Vulnerability:

Remarks: Believed to be a biplane flying boat

Tactical Data:

TYPE 99 NAVY FOUR ENGINE FLYING BOAT

“EMILY”

Originally Manufactured by:

Also Manufactured by:

Crew:

Engine:

Dimensions: Wing span 115 ft. Length 75 ft. (estimated).

Empty

Full Military Load

Extra Fuel

Weights:

Maximum Speed: 215 M. P. H.

Rate of Climb:

Service Ceiling:

RANGE:

Range in
Statute Miles

Cruising
Speed

Bombs

Fuel
Imp. Gal.

Fuel
U.S. Gal.

Max. Bombs

Max. Fuel

Radio:

Armour:

Armament:

Ammunition:

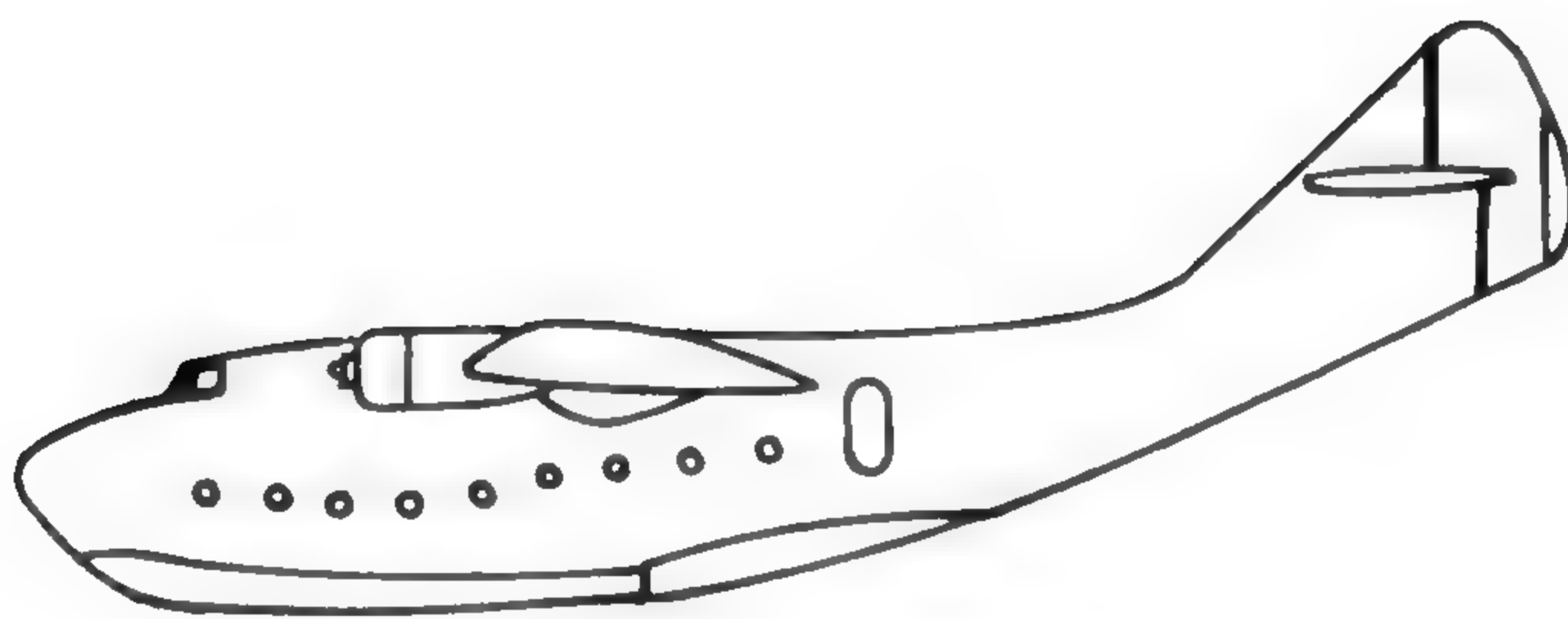
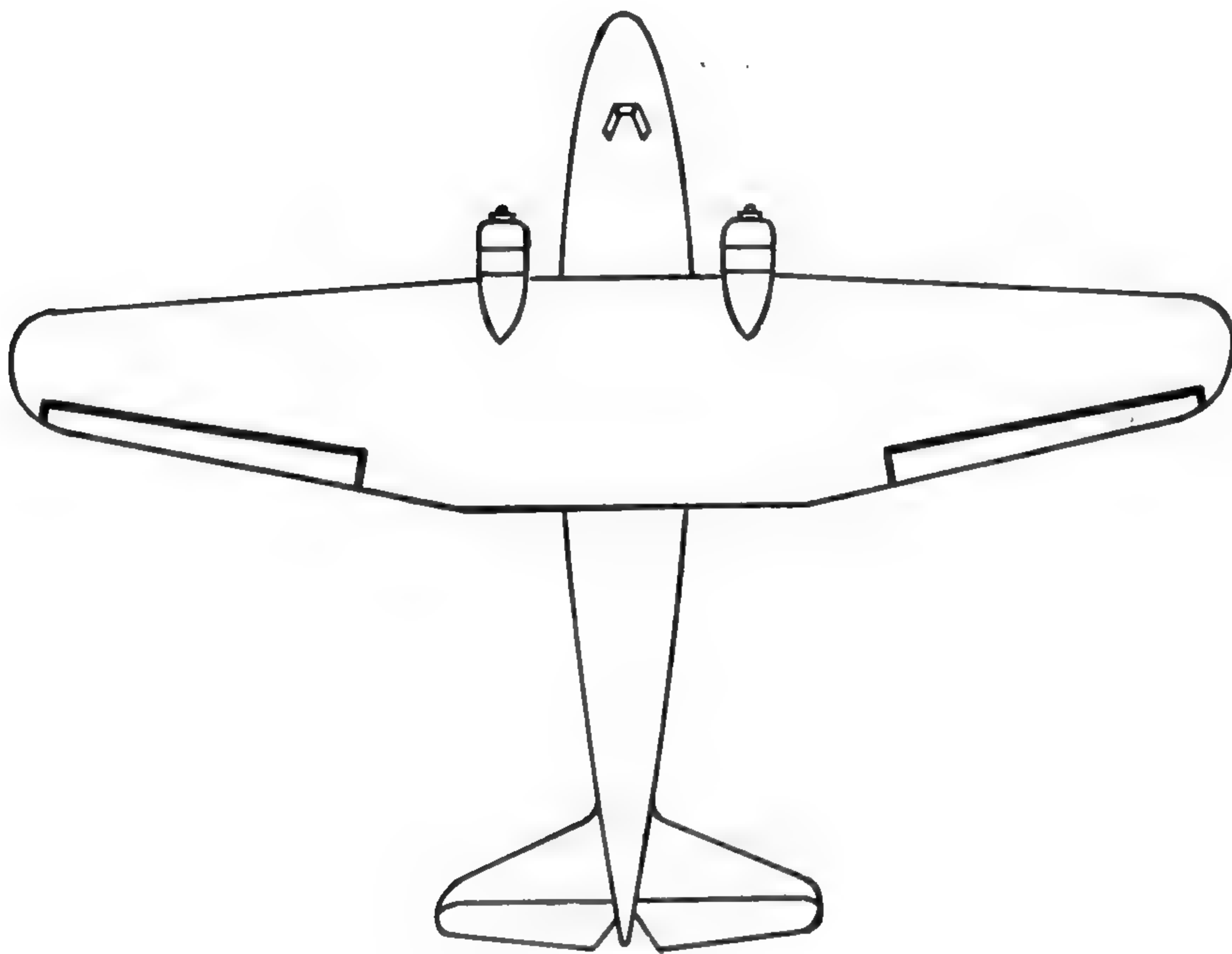
Vulnerability:

Remarks: Wing floats reported to be retractable.

Tactical Data:

KAWANISHI TYPE 99 NAVY TWIN ENGINE FLYING BOAT

"CHERRY"



KAWANISHI TYPE 99, NAVY TWIN ENGINE FLYING BOAT

“CHERRY”

Originally Manufactured by: Kawanishi

Also Manufactured by:

Crew:

Engine: This plane is believed to be equipped with two eighteen cylinder
Shinten Model 21, 1800 h.p. radials

Dimensions: Wing Span 100'-105' Length 62'-65' Height 24' 6"

Empty	Full Military Load	Extra Fuel
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Weights:

Maximum Speed:

Rate of Climb:

Service Ceiling:

RANGE

	Range in Statute Miles	Cruising Speed	Bombs	Fuel Imp. Gal.	Fuel U.S. Gal.
Normal			May carry one torpedo under each wing. 2 x 550 lb. 4 x 132 lb.		
Max. Fuel					

Radio:

Armour: Nil.

Armament:

Ammunition:

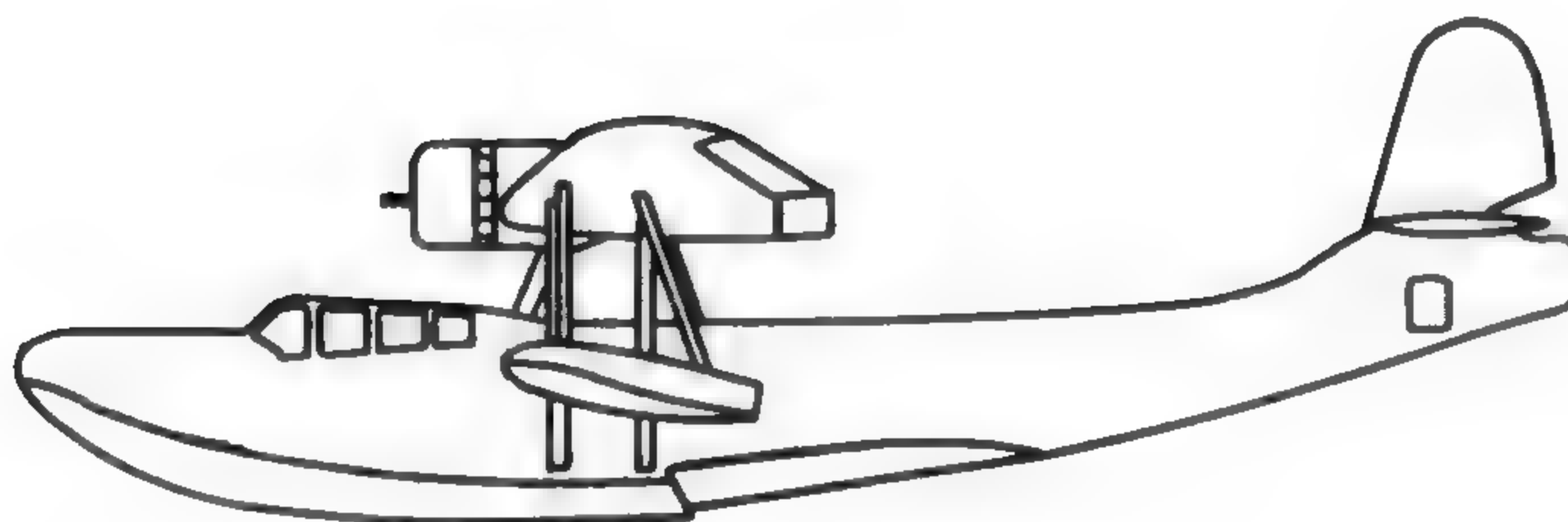
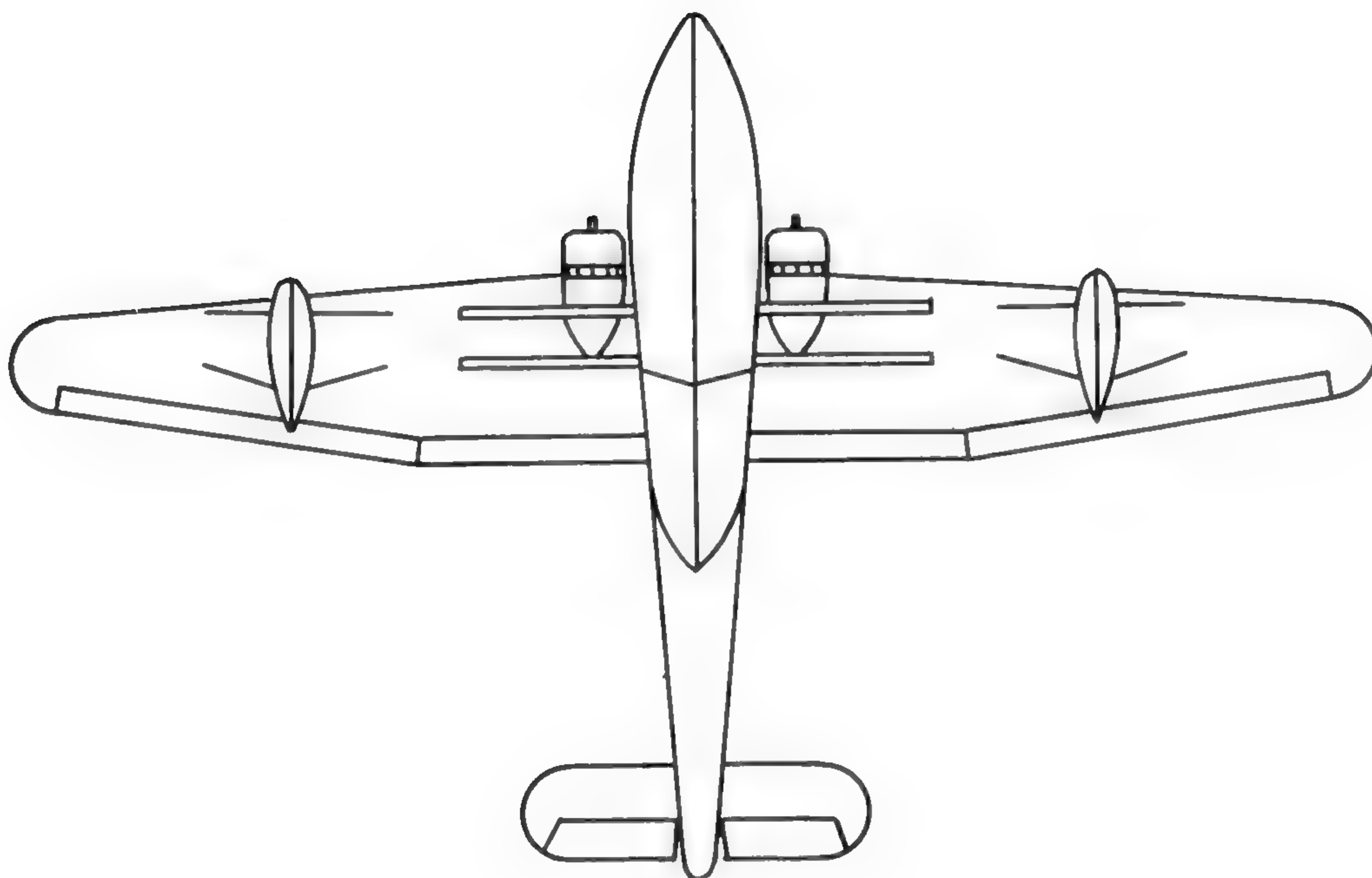
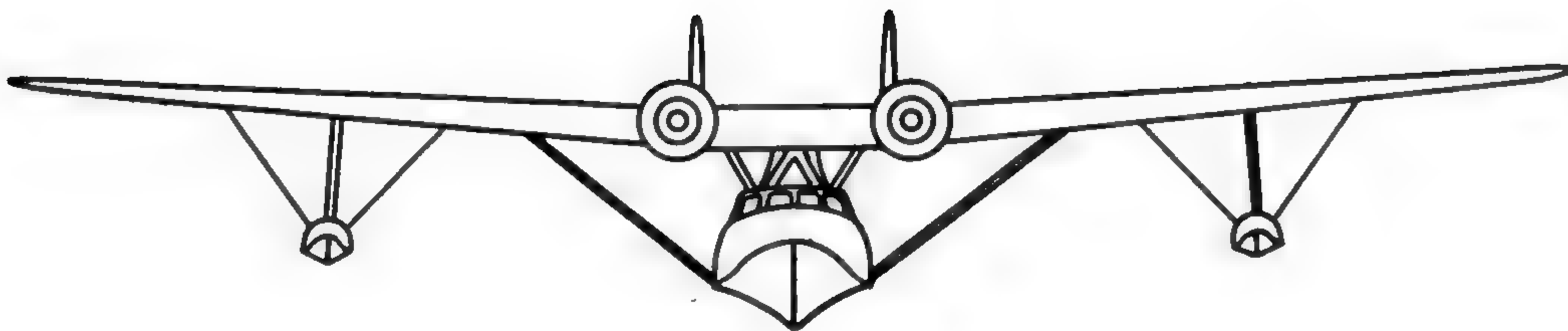
Vulnerability:

Remarks: This is a twin engined, high wing, flying boat with high single tail and is similar to the Consolidated Catalina excepting the wing which appears to have a straight leading and trailing edge. Retractable wing tip floats are indicated. May be manufactured by Naval Aircraft Factory.

Tactical Data:

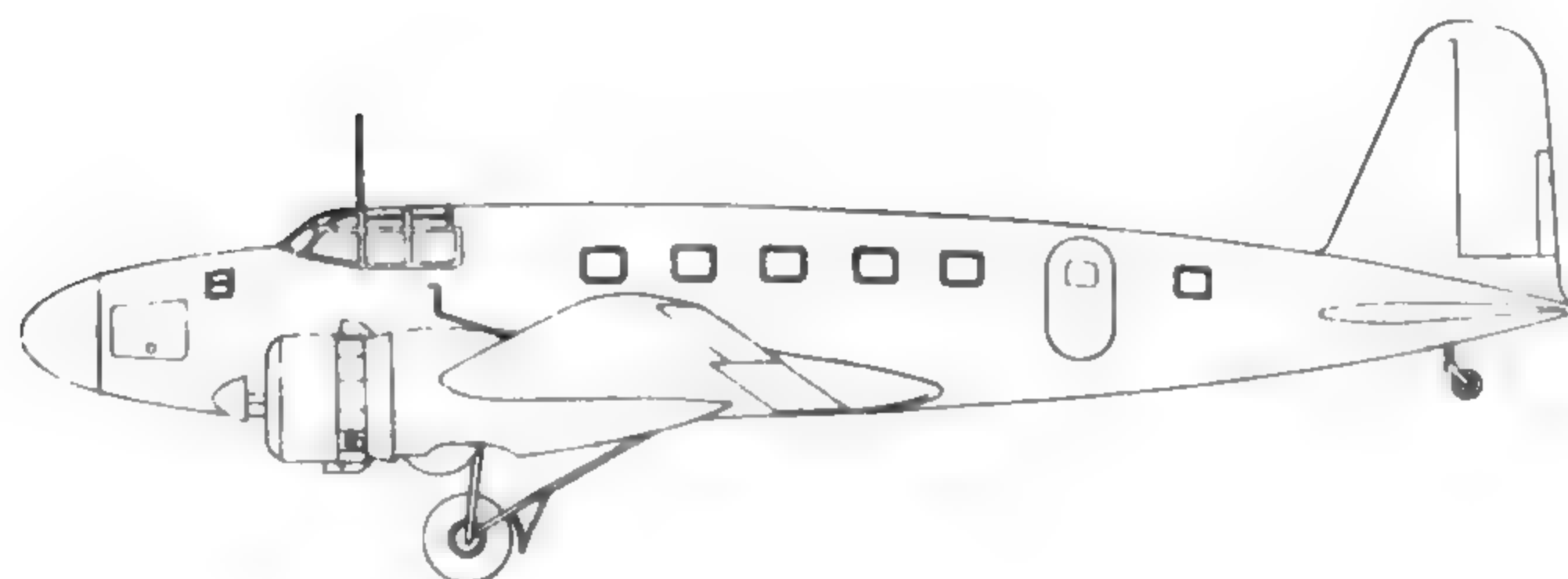
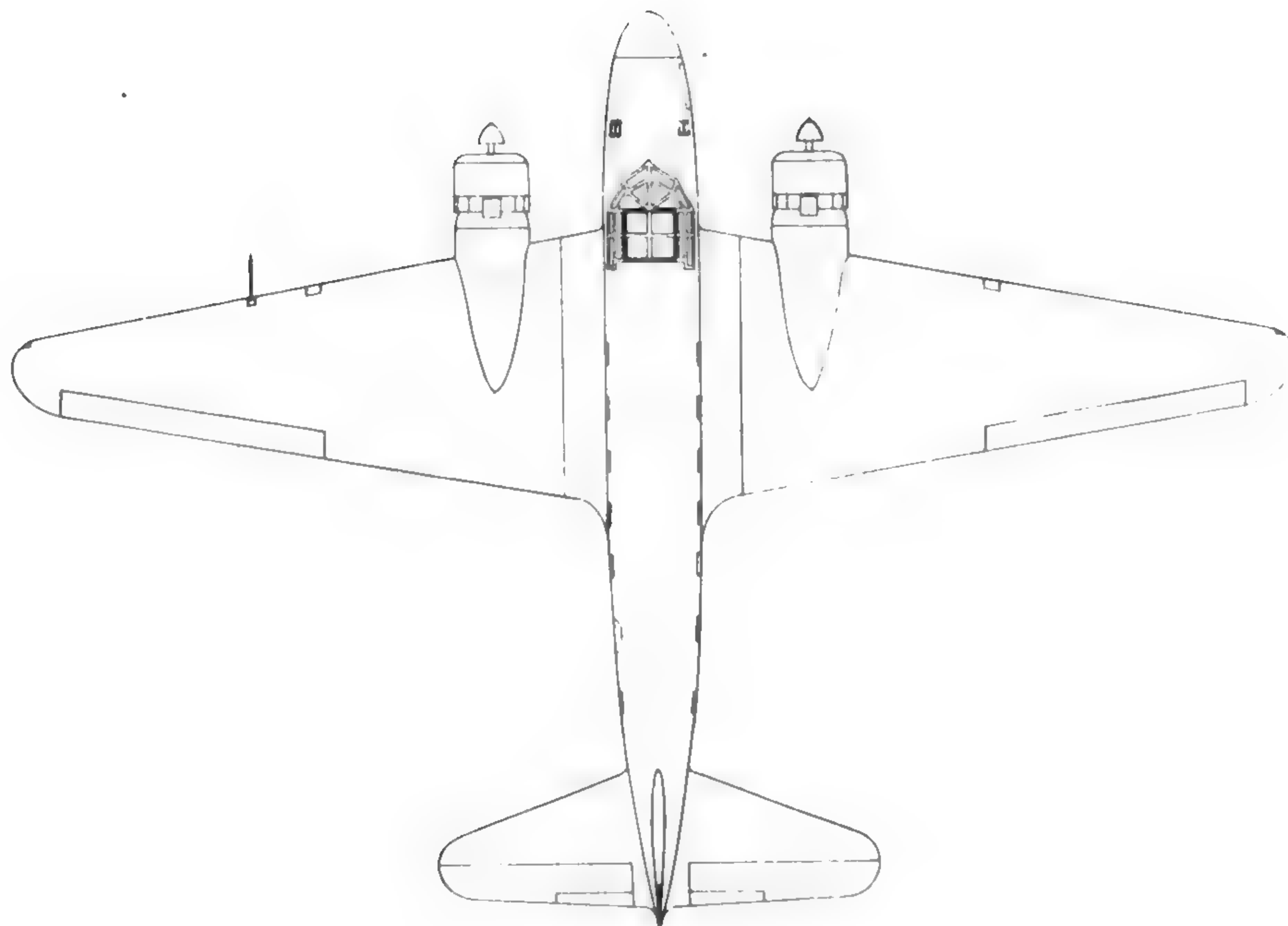
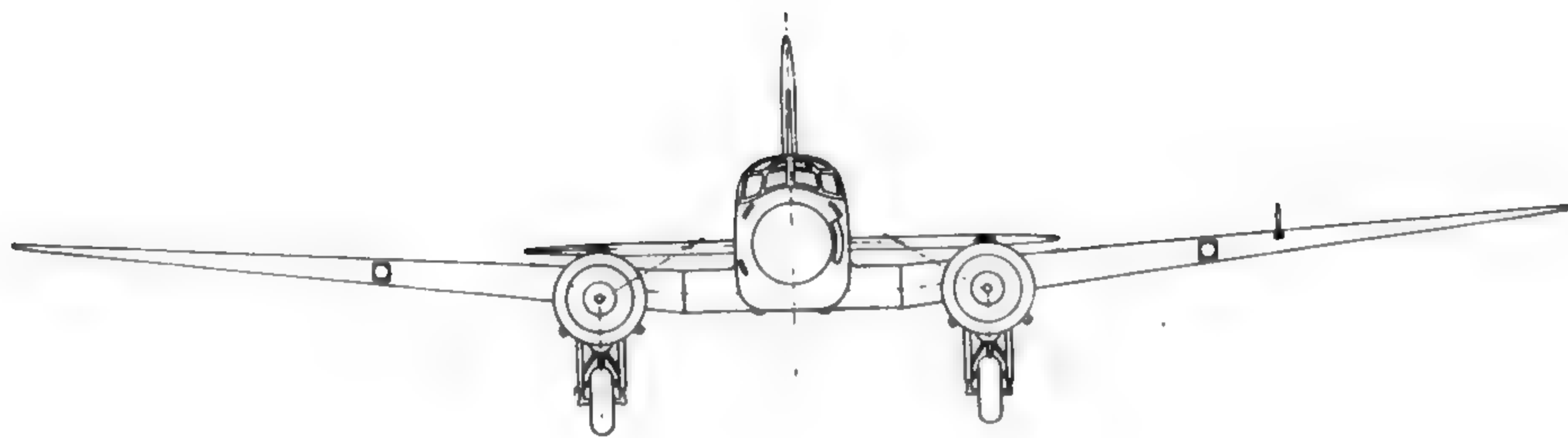
TYPE 99 NAVY TWIN ENGINE FLYING BOAT

"CHERRY"



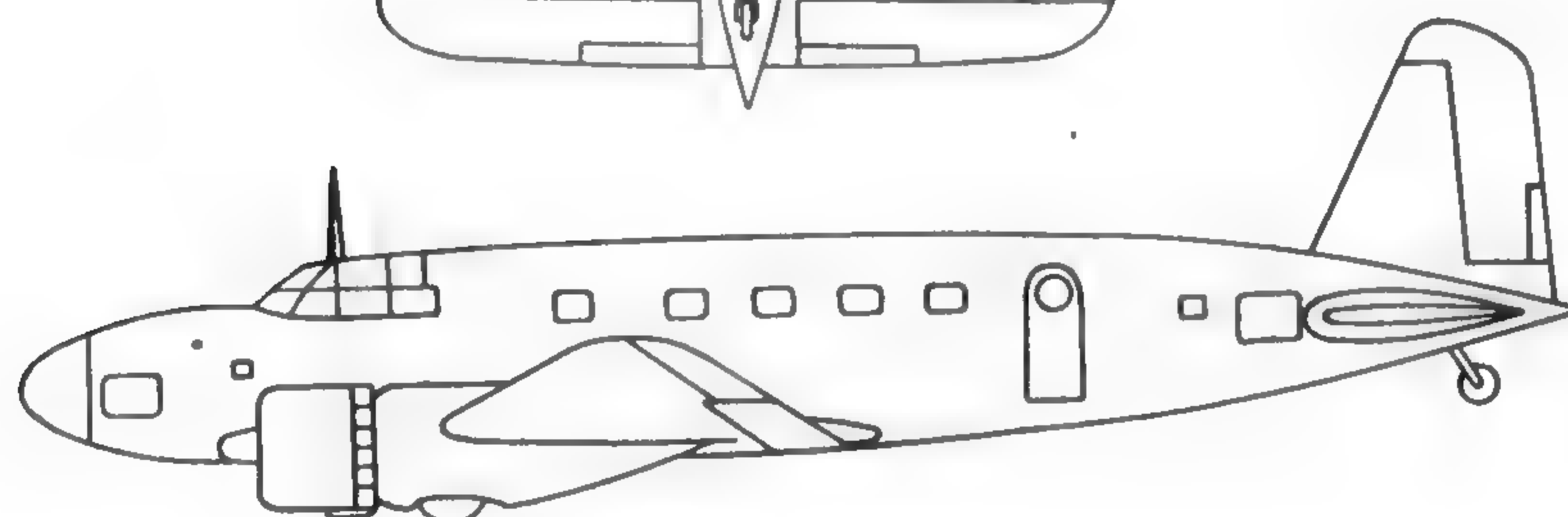
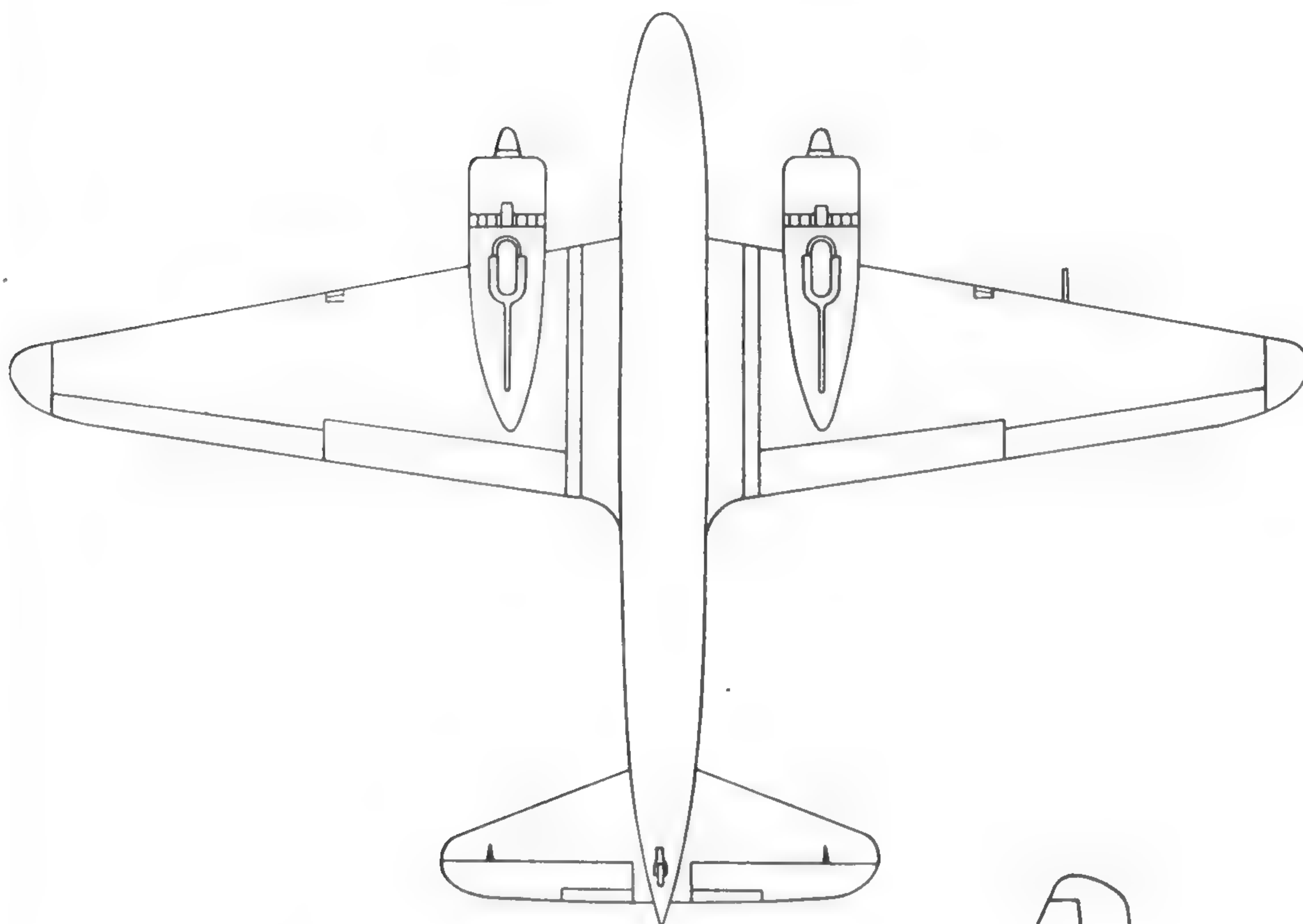
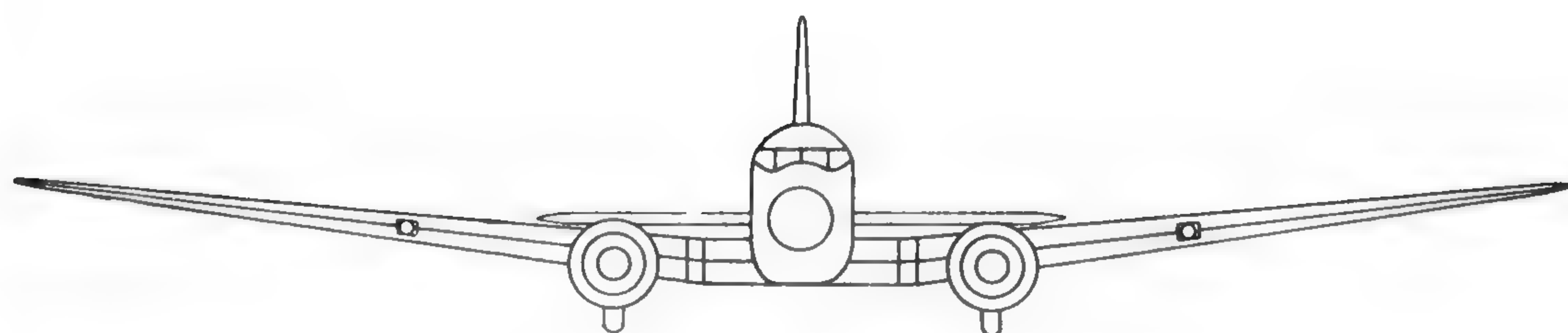
MC 20 ARMY TRANSPORT

"TOPSY"



MITSUBISHI MC 20, ARMY TRANSPORT

“TOPSY”



MITSUBISHI MC 20, ARMY TRANSPORT

“TOPSY”

Originally Manufactured by: Mitsubishi

Also Manufactured by:

Crew: 2 to 3, passengers 11

Engines: Two radial, air-cooled.

Dimensions: Wing Span 74' 0" Length 52' 8" Height 16' 0"

Empty

Normal

Full Military Load

Weights:

Maximum Speed:

Rate of Climb:

Service Ceiling:

RANGE:

Range in
Statute Miles

Cruising
Speed

Bombs
(Max.)

Fuel
Imp. Gal.

Fuel
U.S. Gal.

Max. Bombs

Normal

Max. Fuel

Radio:

Armour:

Armament:

Ammunition:

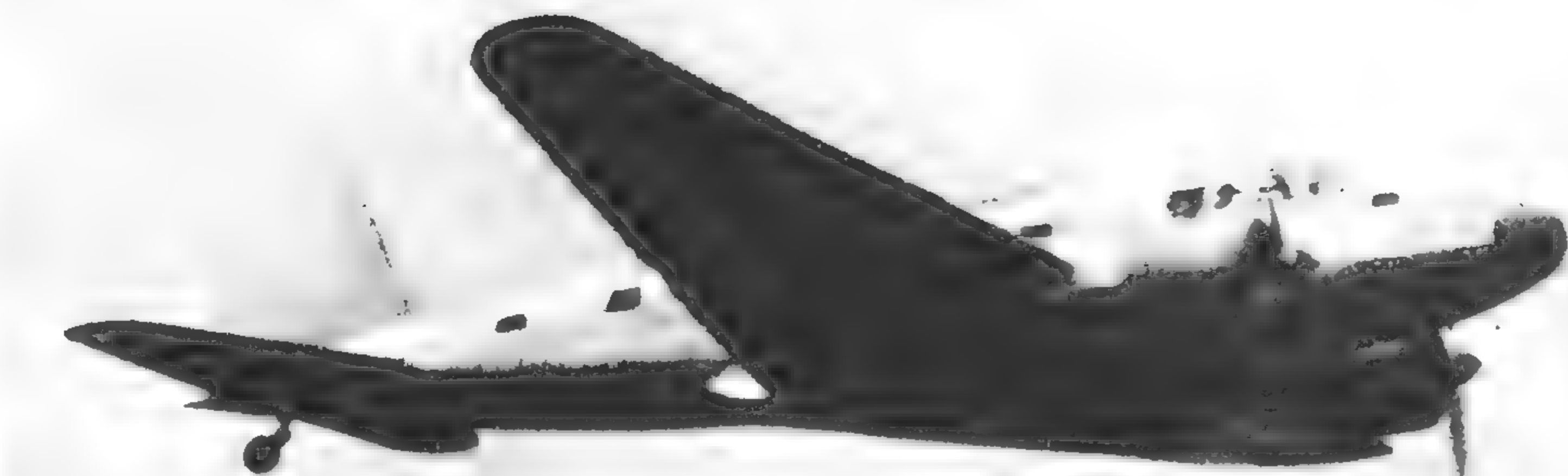
Vulnerability:

Remarks:

Tactical Data

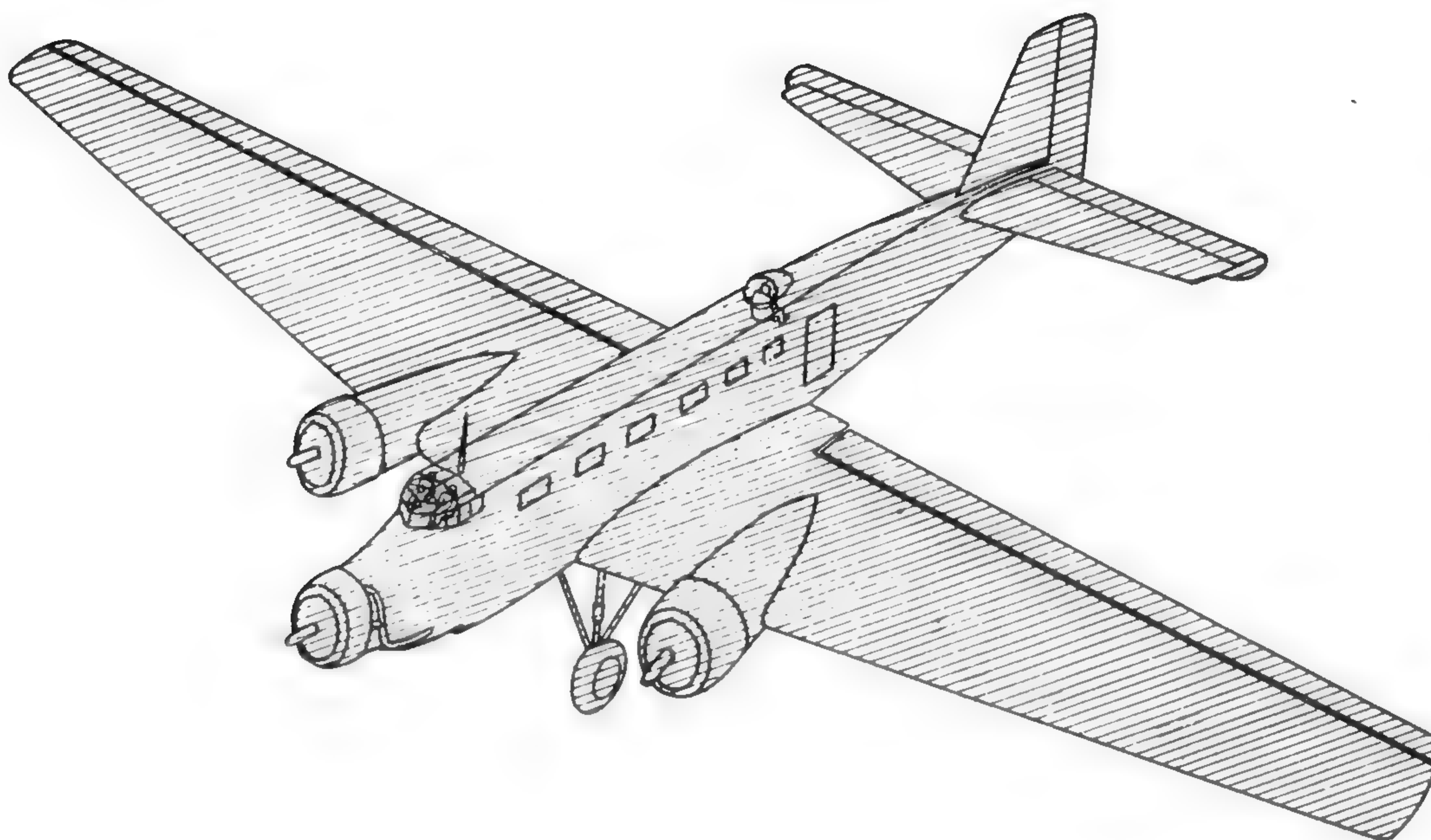
MITSUBISHI MC 20, ARMY TRANSPORT

“TOPSY”



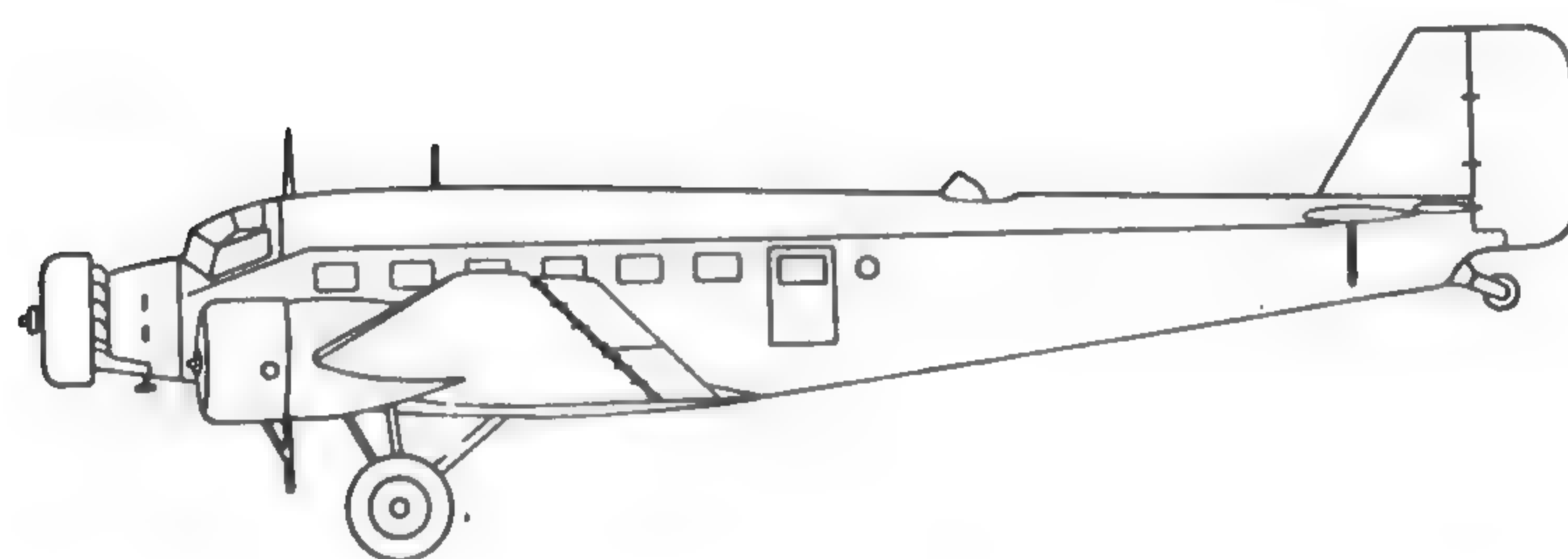
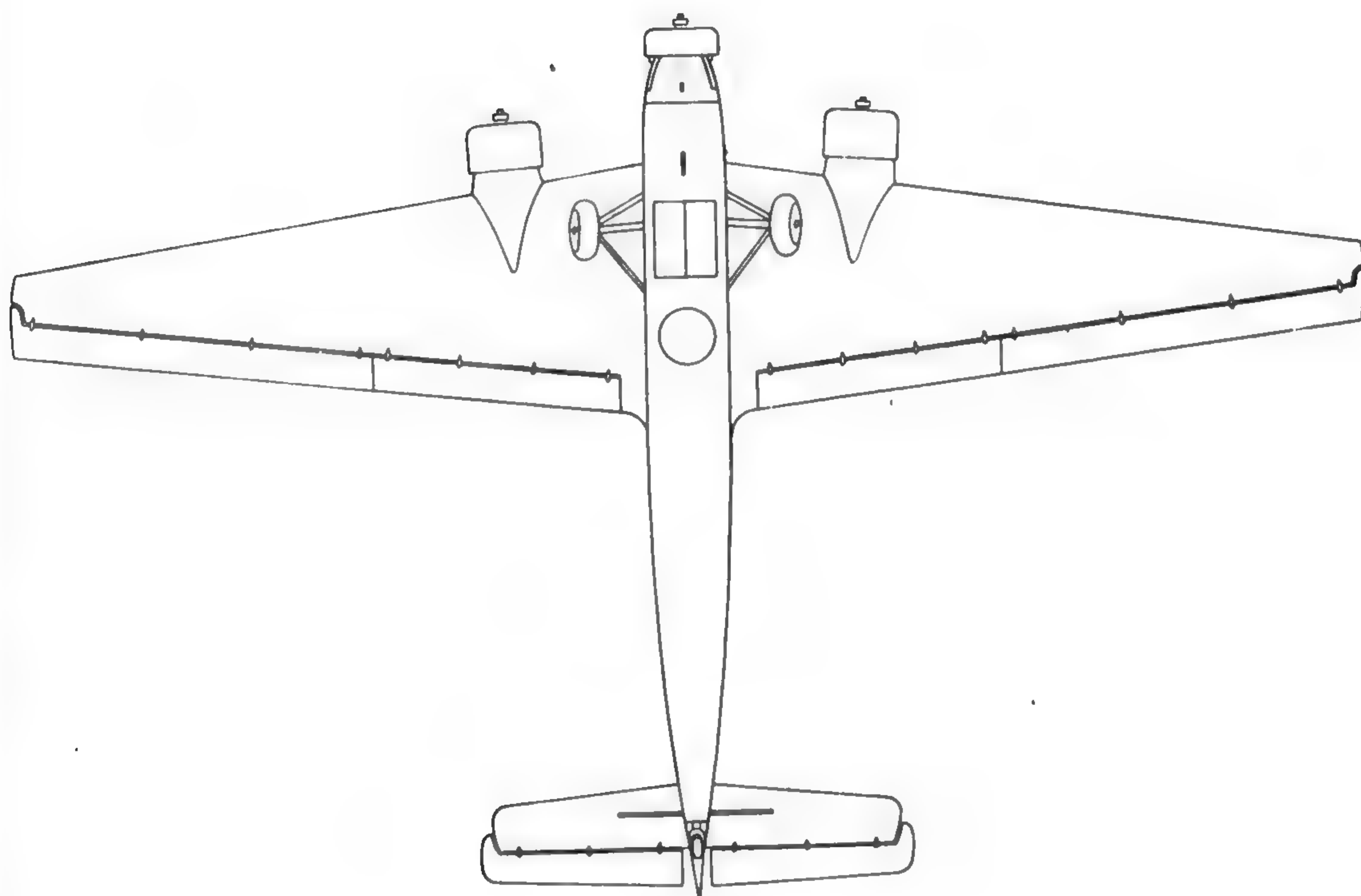
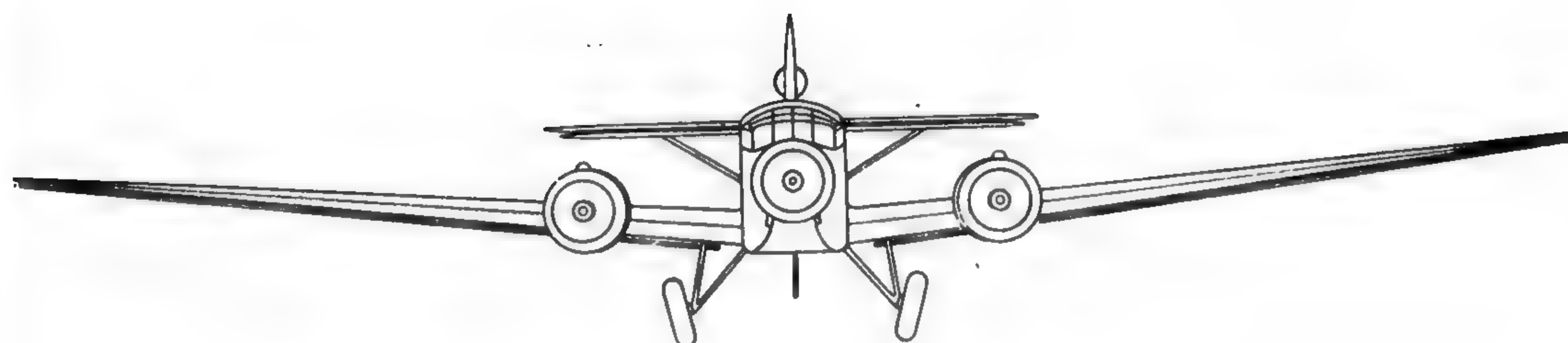
JUNKERS 52, THREE ENGINE TRANSPORT

"TRIXIE"



JUNKERS 52, THREE ENGINE TRANSPORT

“TRIXIE”



JUNKERS 52, THREE ENGINE TRANSPORT

"TRIXIE"

Originally Manufactured by: Junkers

Also Manufactured by:

Crew: Three to five

Engines: Three 9-cylinder radial, developing 830 h.p. each at 3,600 ft.

Dimensions: Wing Span 95' 10½" Length 62' Height 14' 10½"

	Empty	Normal	Full Military Load
<i>Weights:</i>	17,000 lbs.	22,000 lbs.	25,000 lbs.

Maximum Speed: 205 miles per hour at 4,000 ft.

Rate of Climb: 5,000 ft. in 4½ minutes.

Service Ceiling: Start, 22,500 ft.; finish, 25,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Load (Max.)	Fuel Imp. Gal.	Fuel U.S. Gal.
<i>Max. Load</i>	235	174	8,000	174	209
<i>Normal</i>	820	176	2,300	530	638
<i>Max. Fuel</i>	2,250	120	Nil	1,060	1,277

Radio: Two transmitters and 5 receivers.

Armour: Nil.

Armament: Dorsal —1 or 2 x 7.9mm. M.Gs., flexible.
Lateral—2 x 7.9mm. M.Gs., flexible.
Ventral—1 x 7.9mm. M.G., flexible.

Ammunition:

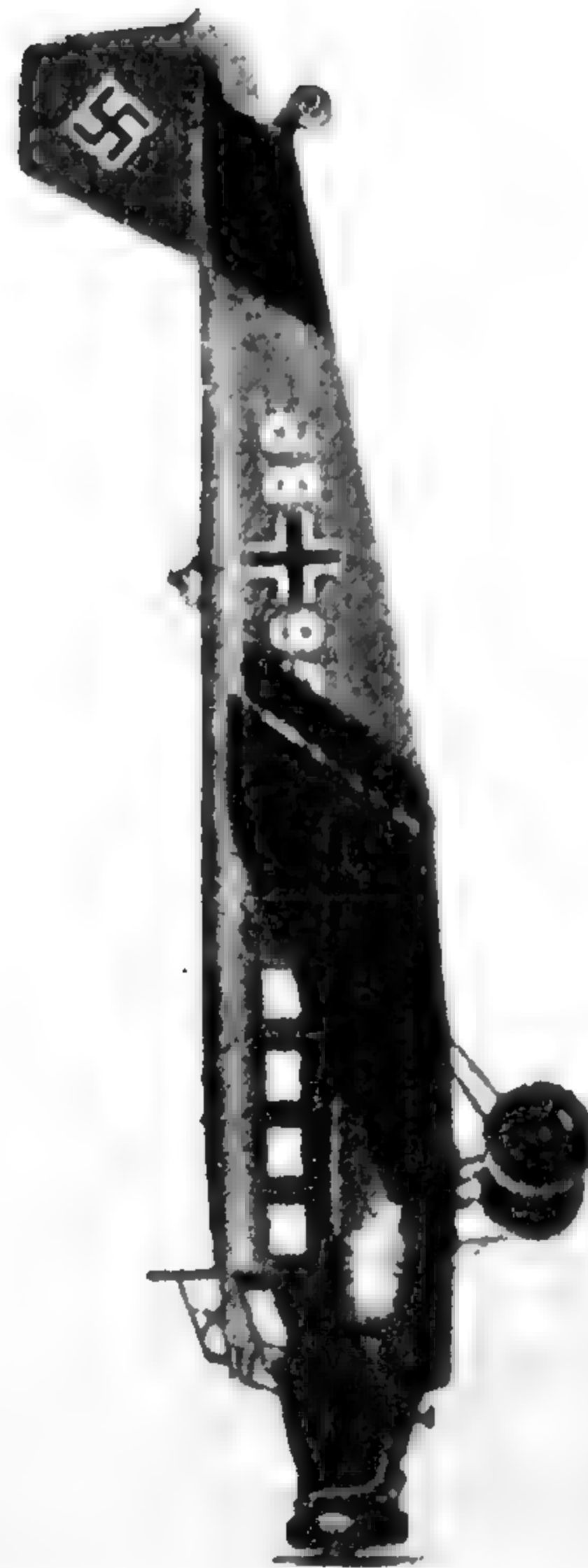
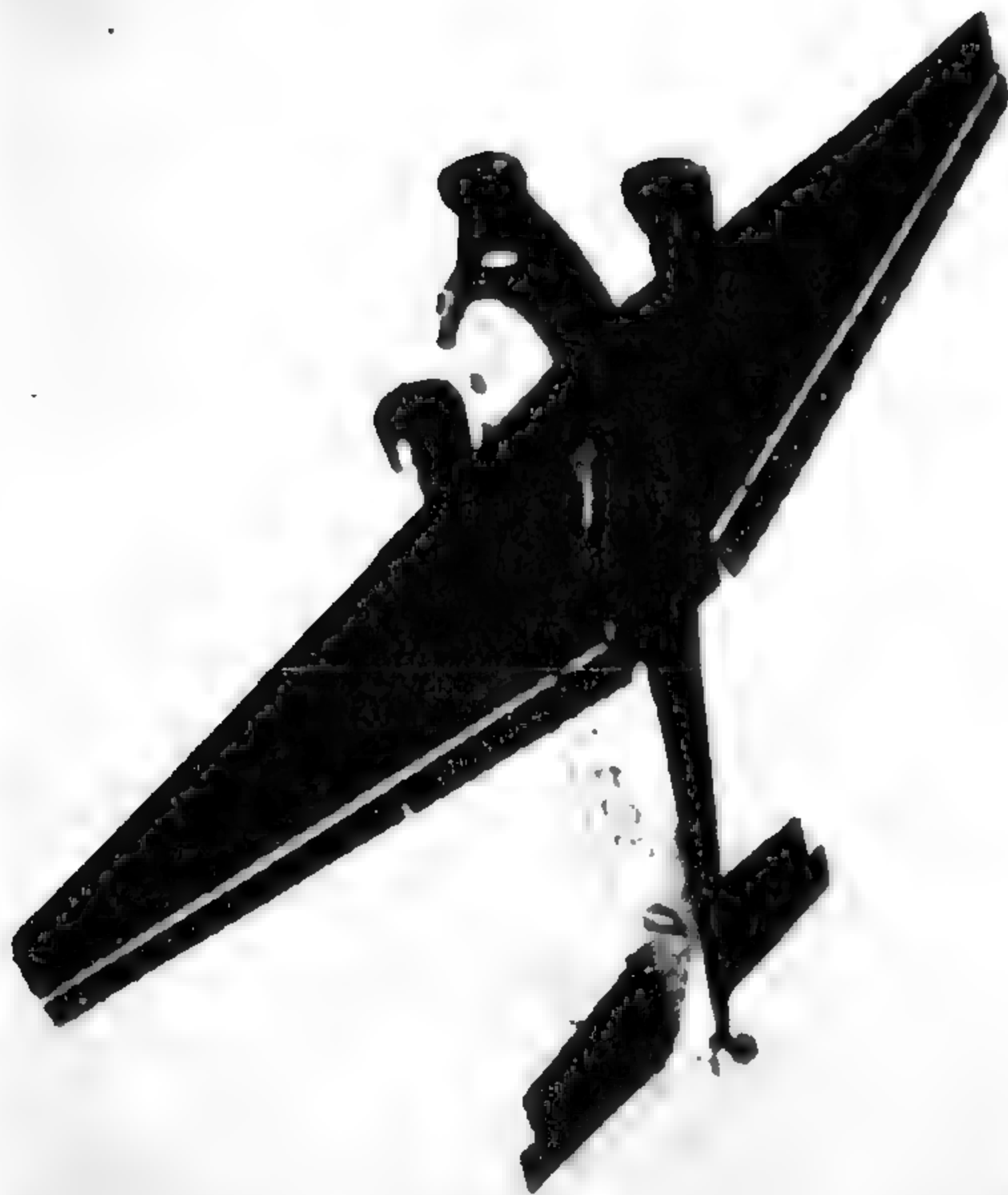
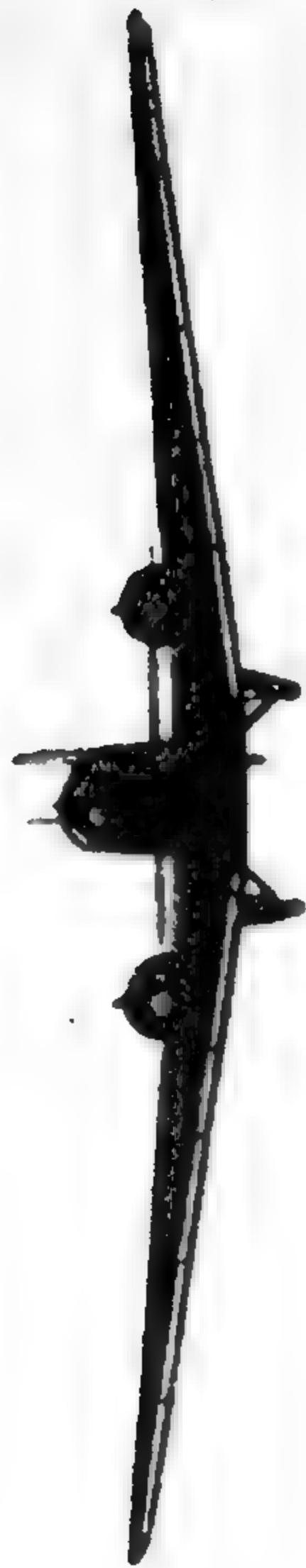
Vulnerability:

Remarks: It is reported that all JU 52 are being equipped with glider towing fittings incorporated with tail wheel.

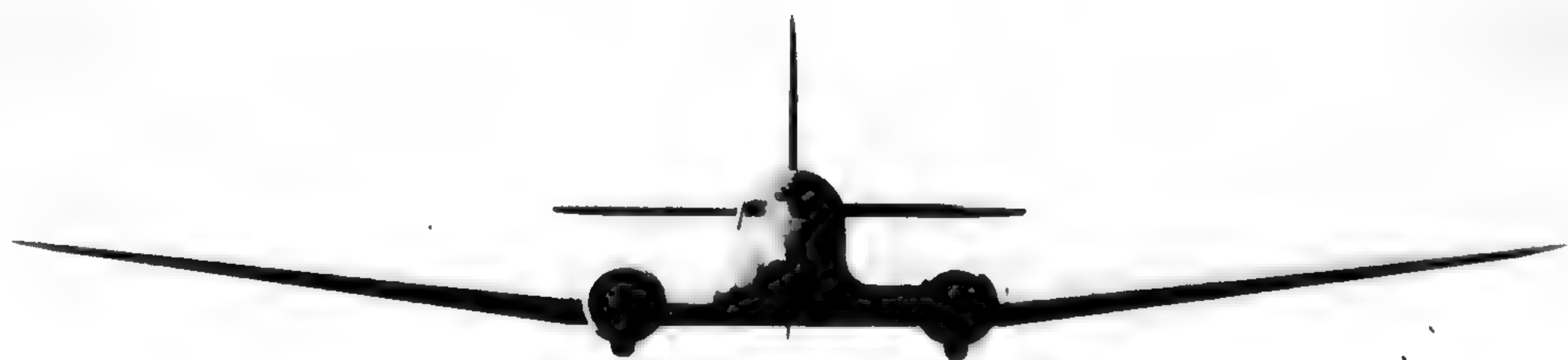
Tactical Data:

JUNKERS 52, THREE ENGINE TRANSPORT

“TRIXIE”



D-2 TRANSPORT
"TESS"



D-2 TRANSPORT

"TESS"

Originally Manufactured by: Douglas as DC-2.

Also Manufactured by: Nakajima.

Crew: 2 to 3.

Engines: Two Kinsei 43, 14 cylinder twin-row air-cooled radials, developing 985 h. p. for take-off.

<i>Dimensions:</i>	<i>Wing Span 95' 0"</i>	<i>Length 64' 5"</i>	<i>Height 16' 11"</i>
	<i>Empty</i>	<i>Normal</i>	<i>Full Military Load</i>
<i>Weights:</i>	<i>12, 200</i>	<i>18, 500</i>	<i>19, 000</i>

Maximum Speed: 212 m. p. h.

Rate of Climb:

Service Ceiling: 22,000 ft.

RANGE:

	<i>Range in Statute Miles</i>	<i>Cruising Speed</i>	<i>Load (Max.)</i>	<i>Fuel Imp. Gal.</i>	<i>Fuel U. S. Gal.</i>
<i>Max. Bombs:</i>					
<i>Normal</i>	<i>1, 100</i>	<i>160</i>	<i>6, 000 lb.</i>	<i>682</i>	<i>822</i>
<i>Max. Fuel:</i>					

Radio:

Armour: Nil.

Armament:

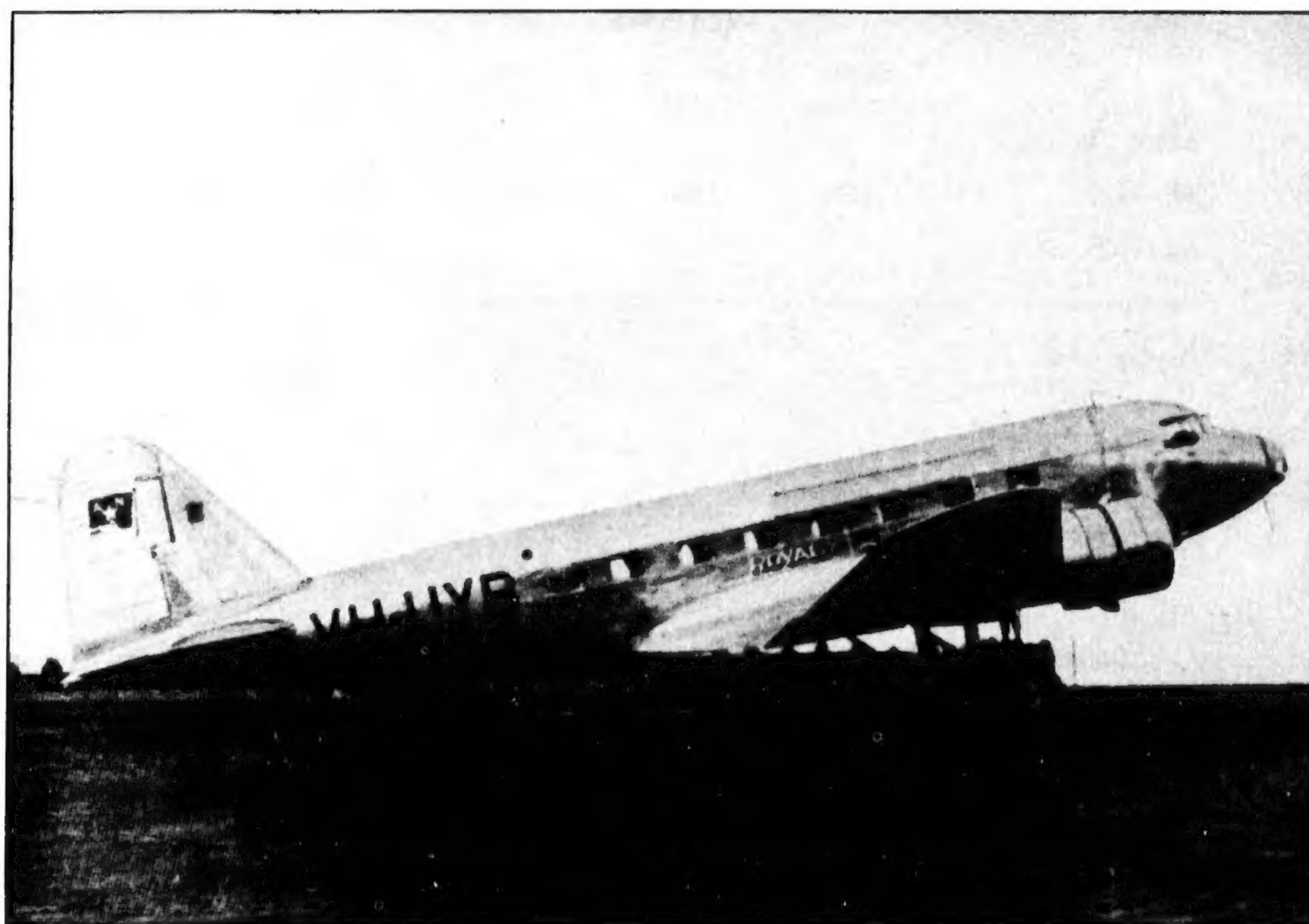
Ammunition:

Vulnerability:

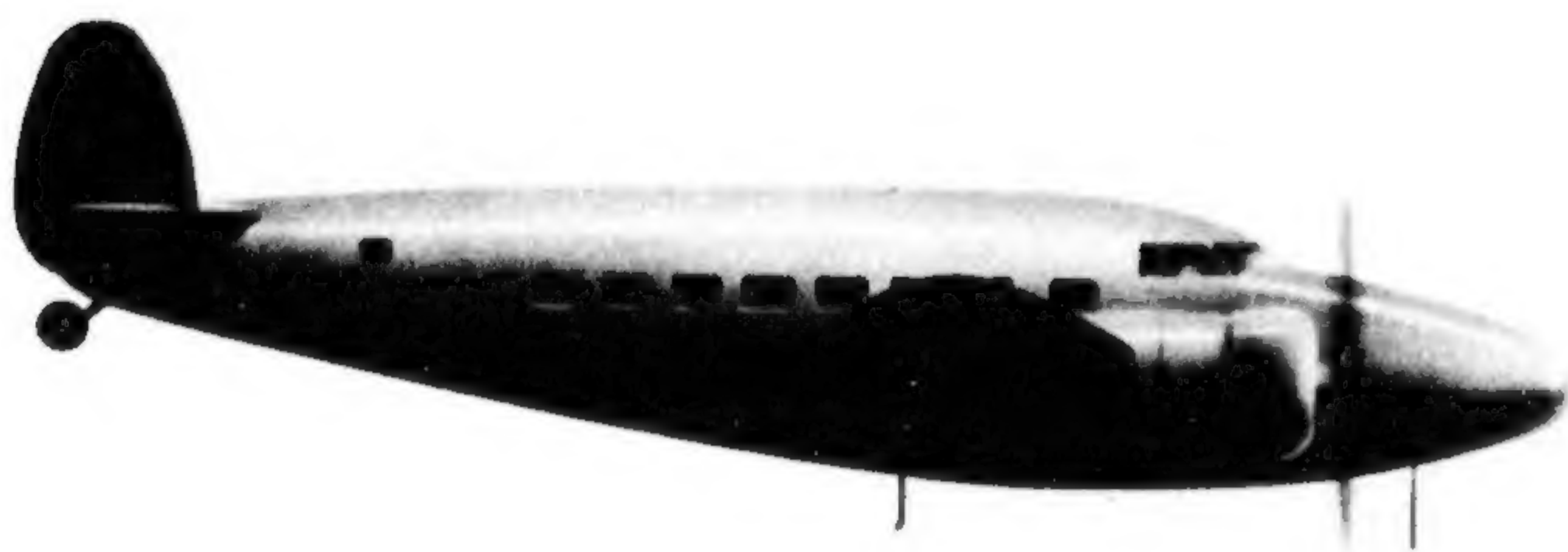
Remarks:

Tactical Data:

D-2 TRANSPORT
"TESS"



TRANSPORT
"THELMA"



TRANSPORT

"THELMA"

Originally Manufactured by: Lockheed (as Lockheed 14).

Also Manufactured by:

Crew: 2 to 3, passengers 10.

Engines: Two radial air-cooled developing 900 h. p. for take-off.

Dimensions: Wing span 65' 6" Length 49' 10" Height 11' 10"

	Empty	Normal	Full Military Load
Weights:	10,400	15,500	17,500

Maximum Speed: 265 miles per hour.

Rate of Climb:

Service Ceiling: 25,000 ft.

RANGE:

	Range in Statute Miles	Cruising Speed	Load (Max.)	Fuel Imp. Gal.	Fuel U. S. Gal.
Max. Bombs:					
Normal:	970	185	4,400 lbs.	535	644
Max. Fuel:					

Radio:

Armour:

Armament:

Ammunition:

Vulnerability: Fuel carried in center section of wing.

Remarks:

Tactical Data:

TRANSPORT
"THELMA"

